Web Crawler Practice

Web Design II - CSS

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Outline

- What is CSS?
- CSS Syntax
- Comments
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- Units
- Colors
- Boundaries
- Texts
- Lists
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- Images
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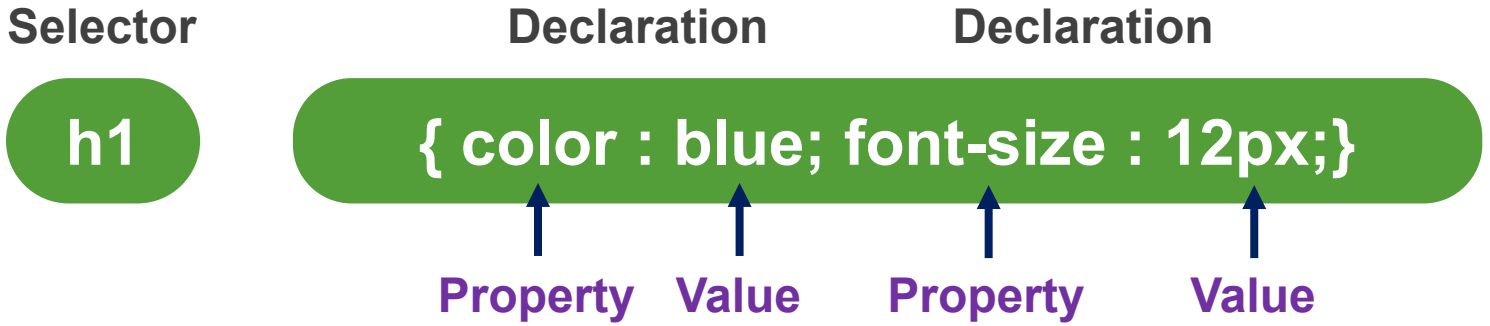
What is CSS?

- CSS stands for **Cascading Style Sheets**.
- CSS describes how HTML elements are to be displayed on screen, paper, or in other media.
- CSS saves a lot of work. It can control the layout of multiple web pages all at once.
- External stylesheets are stored in CSS files.

Source: https://www.w3schools.com/css/css_intro.asp

CSS Syntax – General

- A CSS rule consists of a selector and a declaration block.



- The declaration block contains one or more declarations separated by semicolons. Each declaration includes a CSS property name and a value, separated by a colon.
- Multiple CSS declarations are separated with semicolons, and curly braces surround declaration blocks.

Source: https://www.w3schools.com/css/css_syntax.asp

CSS Syntax – General

Here is a demo code in **w0201_css_syntax.html**

```
<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width,
    initial-scale=1">
    <title>w0201 css syntax</title>
    <style type="text/css">
    p {
        color: blue;
        font-weight: bold;
    }
    </style>
</head>

<body>
    <p>Hello world!</p>
    <p>The words here is highlighted with blue color
    in a bold font weight.</p>
</body>
```

Here is the results in the browser!

Hello world!

The words here is highlighted with blue color in a bold font weight.

CSS Syntax – Format

- When a browser reads a style sheet, it will format the HTML document according to the information in the style sheet.
- There are three ways of inserting a style sheet:
  a) External CSS
  b) Internal CSS
  c) Inline CSS
- The following three slides will introduce these three types of CSS style.

Source: https://www.w3schools.com/css/css_howto.asp

CSS Syntax – External CSS

- With an external style sheet, you can change the look of an entire website by changing just one file!
- Each HTML page must include a reference to the external style sheet file inside the <link> element, inside the head section.
- An external style sheet can be written in any text editor and must be saved with a .css extension.
- The external .css file should not contain any HTML tags.

Source: https://www.w3schools.com/css/css_howto.asp

CSS Syntax – External CSS

Demo: w0202_css_syntax2.html

```html
<!DOCTYPE html>
<html>

<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width,
    initial-scale=1">
    <link rel="stylesheet" type="text/css" href="
    w0201_css_syntax2.css">
    <title>w0202 css syntax-2</title>
</head>

<body>
    <p>Hello world!</p>
    <p>The words here is highlighted with yellow color
    in a bold font weight.</p>
</body>

</html>
```

Demo: w0202_css_syntax2.css

```css
body {
    background-color: skyblue;
}

p {
    color: yellow;
    font-size: 100px;
    font-weight: bold;
}
```

Hello world!

The words here is highlighted with yellow color in a bold font weight.

CSS Syntax – Internal CSS

- An internal style sheet may be used if one single HTML page has a unique style.
- The internal style is defined inside the **<style>** element, inside the head section.

Demo: w0201_css_syntax.html

```
<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width,
    initial-scale=1">
    <title>w0201 css syntax</title>
    <style type="text/css">
    p {
        color: blue;
        font-weight: bold;
    }
    </style>
</head>

<body>
    <p>Hello world!</p>
    <p>The words here is highlighted with blue color
    in a bold font weight.</p>
</body>
```

Source: https://www.w3schools.com/css/css_howto.asp

CSS Syntax – Inline CSS

- An inline style may be used to apply a unique style for a single element.
- To use inline styles, add the style attribute to the relevant element.
- The style attribute can contain any CSS property.

Demo: w0203_css_syntax3.html

```
<!DOCTYPE html>
<html>

<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width,
    initial-scale=1">
    <title>w0203 css syntax-3</title>
</head>

<body>
    <p style="color: blue; font-size: 40px;">Hello
    world!</p>
    <p style="font-size: 50px;">Lorem ipsum dolor sit
    amet, consectetur adipiscing elit. Phasellus vitae
    elementum mi, at consectetur magna. Quisque in
    orci vitae odio molestie dictum a vitae nibh.
    Maecenas et lacus at leo venenatis fringilla. </p>
</body>

</html>
```

Hello world!

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus vitae elementum mi, at consectetur magna. Quisque in orci vitae odio molestie dictum a vitae nibh. Maecenas et lacus at leo venenatis fringilla.

Source: https://www.w3schools.com/css/css_howto.asp

Lab Practice #1

- Given an external, internal, and inline CSS of a specific HTML element.
  1) Define an external CSS for a specific HTML element.
  2) Link to the pre-defined external CSS
  3) Define an internal CSS in the head section
  4) Call the specific HTML element in the body section.
  5) Define an inline CSS for the specific HTML element in the body section again.
  6) Observe the results and give an explanation

Comments

- CSS comments are not displayed in the browser, but they can help document your source code.
- Comments are used to explain the code and may help when you edit the source code later.
- Comments are ignored by browsers.
- A CSS comment is placed inside the **<style>** element, and starts with **/*** and ends with ***/**

```
/*w0204 css comment*/
body {
    background-color: skyblue;
    /*set bkg color to skyblue*/
}

p {
    color:/*yellow*/yellow;
    font-size: 100px;
    font-weight: bold;
}

/*This is the demo code for NTNU web crawler couse.
If you have any question, please do not hesitate to
 ask me! Thank you!*/
```

Source: https://www.w3schools.com/css/css_comments.asp

Selectors

- CSS selectors are used to "find" (or select) the HTML elements you want to style.
- We can divide **CSS selectors** into **five categories**:
  a) **Simple selectors** (select elements based on name, id, class)
  b) **Combinator selectors** (select elements based on a specific relationship between them)
  c) **Pseudo-class selectors** (select elements based on a certain state)
  d) **Pseudo-elements selectors** (select and style a part of an element)
  e) **Attribute selectors** (select elements based on an attribute or attribute value)

Source: https://www.w3schools.com/css/css_selectors.asp

Simple Selectors

Element Selector

- The element selector selects HTML elements based on the element name.
- **Demo: w0205_simple_selector.html**

```css
p {
    color: blue;
    font-size: 40px;
}
```

CSS settings in the head section

```html
<p>Hello world!</p>
```

<p> in the body section

Hello world!

<p> in the browser

Source: https://www.w3schools.com/css/css_selectors.asp

Simple Selectors

ID Selector

- The **id** selector uses the id attribute of an HTML element to select a specific element. The **id** of an element is unique within a page, so the **id** selector is used to select one unique element! To select an element with a specific **id**, write a hash (**#**) character, followed by the **id** of the element.
- **Demo: w0205_simple_selector.html**

CSS settings in the head section

```
#p1 {
    color: red;
    font-weight: bold;
}
```

<p> in the body section

```
<p id="p1">Lorem ipsum dolor sit amet, consectetur
adipiscing elit. Phasellus vitae elementum mi, at
consectetur magna. Quisque in orci vitae odio
molestie dictum a vitae nibh. Maecenas et lacus at
leo venenatis fringilla. </p>
```

<p> in the browser

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus vitae elementum mi, at consectetur magna. Quisque in orci vitae odio molestie dictum a vitae nibh. Maecenas et lacus at leo venenatis fringilla.

Source: https://www.w3schools.com/css/css_selectors.asp

Simple Selectors

Class Selector

- The class selector selects HTML elements with a specific class attribute.
- To select elements with a specific class, write a period (.) character, followed by the class name.

CSS settings in the head section

```css
.center {
    text-align: center;
}

.large {
    font-size: 100px;
}
```

<p> in the body section

```html
<p class="center">Phasellus vitae elementum mi, at consectetur magna.</p>

<p class="center large">Quisque in orci vitae odio molestie dictum a vitae nibh.</p>
```

<p> in the browser

Phasellus vitae elementum mi, at consectetur magna.

Quisque in orci vitae odio molestie dictum a vitae nibh.

Demo: w0205_simple_selector.html

Source: https://www.w3schools.com/css/css_selectors.asp

Simple Selectors

Selector Demo

1. Element
2. ID
3. Class

```
<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width,
    initial-scale=1">
    <title>w0205 simple selector</title>
    <style type="text/css">
    p {
        color: blue;
        font-size: 40px;
    }

    #p1 {
        color: red;
        font-weight: bold;
    }

    .center {
        text-align: center;
    }

    .large {
        font-size: 100px;
    }
    </style>
</head>

<body>
    <p>Hello world!</p>
    <p id="p1">Lorem ipsum dolor sit amet, consectetur
    adipiscing elit. Phasellus vitae elementum mi, at
    consectetur magna. Quisque in orci vitae odio
    molestie dictum a vitae nibh. Maecenas et lacus at
    leo venenatis fringilla. </p>
    <p class="center">Phasellus vitae elementum mi, at
    consectetur magna.</p>
    <p class="center large">Quisque in orci vitae odio
    molestie dictum a vitae nibh.</p>
</body>
```

Hello world!

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus vitae elementum mi, at consectetur magna. Quisque in orci vitae odio molestie dictum a vitae nibh. Maecenas et lacus at leo venenatis fringilla.

Phasellus vitae elementum mi, at consectetur magna.

Quisque in orci vitae odio molestie dictum a vitae nibh.

Demo: w0205_simple_selector.html

Source: https://www.w3schools.com/css/css_selectors.asp

Combinator Selectors

- A combinator is something that explains the relationship between the selectors.
- A CSS selector can contain more than one simple selector. Between the simple selectors, we can include a combinator.
- There are four different combinators in CSS:
  a) **Descendant selector** (space)
  b) **Child selector** (>)
  c) **Adjacent sibling selector** (+)
  d) **General sibling selector** (~)

Source: https://www.w3schools.com/css/css_combinators.asp

Combinator – Descendant Selector

- The descendant selector matches all elements that are descendants of a specified element.
- The following example selects all **<p>** elements inside ** ** elements:

Settings in the head section

```
div p {
    background-color: lightgreen;
}
```

In the body section

```
<h3>Descendant selector</h3>
<p>not in a div</p>
<p>not in a div</p>
<div>
    <p>in a div</p>
</div>
<p>not in a div</p>
```

In the browser, …

Descendant selector

not in a div

not in a div

in a div

not in a div

Source: https://www.w3schools.com/css/css_combinators.asp

Demo: w0206_combinator_selector.html

Combinator – Child Selector

- The child selector selects all elements that are the children of a specified element. The following example selects all **** elements that are children of a ** ** element:

Settings in the head section

```
div>span {
    background-color: lightblue;
}
```

In the body section

```
<h3>Child selector</h3>
<span>not in a div</span>
<div><span>in a div</span></div>
<span>not in a div</span>
<span>not in a div</span>
```

In the browser, …

Child selector

not in a div

in a div

not in a div not in a div

Demo: w0206_combinator_selector.html

Source: https://www.w3schools.com/css/css_combinators.asp

Combinator – Adjacent Sibling

- The adjacent sibling selector is used to select an element that is directly after another specific element. Sibling elements must have the same parent element, and "adjacent" means "immediately following". The following example selects the first **<article>** element that are placed immediately after ** ** elements:

Settings in the head section

```
div+article {
    background-color: yellow;
}
```

Demo: w0206_combinator_selector.html

In the body section

```
<h3>Adjacent sibling</h3>
<article>(article) before a div</article>
<div>
    <article>(div/article) before a div</article>
    <article>(div/article) before a div</article>
</div>
<div>
    <article>(div/article) in a div</article>
    <article>(div/article) in a div</article>
</div>
<article>(article) after a div</article>
<article>(article) before a div</article>
<div>(div) a div</div>
<article>(article) after a div</article>
```

In the browser, …

Adjacent sibling

(article) before a div
(div/article) before a div
(div/article) before a div
(div/article) in a div
(div/article) in a div
(article) after a div
(article) before a div
(div) a div
(article) after a div

Source: https://www.w3schools.com/css/css_combinators.asp

Combinator – General Sibling

- The general sibling selector selects all elements that are next siblings of a specified element. The following example selects all **<cite>** elements that are next siblings of ** ** elements:

Settings in the head section

```
div~cite {
    background-color: beige;
}
```

In the body section

```
<h3>General Sibling</h3>
<cite>(cite) cite 0</cite>
<cite>(cite) cite 1</cite>
<div><cite>(div/cite) cite 2</cite></div>
<cite>cite 3</cite>
<div>(div) cite4</div>
<div>(div) cite5</div>
<cite>(cite) cite 6</cite>
<cite>(cite) cite 7</cite>
<p>(paragraph) paragraph</p>
<cite>(cite) cite 8</cite>
```

In the browser, …

General Sibling

(cite) cite 0 (cite) cite 1
(div/cite) cite 2
cite 3
(div) cite4
(div) cite5
(cite) cite 6 (cite) cite 7

(paragraph) paragraph

(cite) cite 8

Demo: w0207_combinator_selector2.html

Source: https://www.w3schools.com/css/css_combinators.asp

Pseudo-class Selectors

- A pseudo-class is used to define a special state of an element.
- For example, it can be used to:
  a) Style an element when a user mouses over it
  b) Style visited and unvisited links differently
  c) Style an element when it gets focus

Source: https://www.w3schools.com/css/css_pseudo_classes.asp

Pseudo-class Selectors

- **a:hover** MUST come after **a:link** and **a:visited** in the CSS definition to be effective!
- **a:active** MUST come after **a:hover** in the CSS definition to be effective!
- Pseudo-class names are not case-sensitive.

Demo: w0208_pseudo_class_selector.html

```
<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width,
    initial-scale=1">
    <title>w0208 pseudo class selector</title>
    <style type="text/css">
    /* unvisited link */
    a:link {
        color: #FF0000;
    }

    /* visited link */
    a:visited {
        color: #00FF00;
    }

    /* mouse over link */
    a:hover {
        color: #FF00FF;
    }

    /* selected link */
    a:active {
        color: #0000FF;
    }
    </style>
</head>

<body>
    <div style="font-size: 40px;"><a href="#">CCH's Webpage</a></div>
</body>
```

CCH's Webpage

CCH's Webpage

CCH's Webpage

CCH's Webpage

Source: https://www.w3schools.com/css/css_pseudo_classes.asp

Pseudo-class Selectors

- Pseudo-classes can be combined with HTML classes:
- Hover over a ** ** element to show a **<p>** element (like a tooltip):

```
<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width,
    initial-scale=1">
    <title>w0209 pseudo class selector-2</title>
    <style type="text/css">
    p {
        display: none;
        background-color: yellow;
        padding: 20px;
    }

    div:hover p {
        display: block;
    }

    span.highlight:hover {
        color: #AC1CF1;
        font-size: 100px;
    }
    </style>
</head>
```

Demo: w0209_pseudo_class_selector2.html

```
<body>
    <div>
        <span class="highlight">example</span><br>
        <span style="font-size: 50px;">Hover here to show the hidden
        element.</span>
        <p>HELLO!</p>
    </div>
</body>
```

Before

example

Hover here to show the hidden element.

After

example

Hover here to show the hidden element.

HELLO!

Source: https://www.w3schools.com/css/css_pseudo_classes.asp

First-child Pseudo-class

- The **:first-child** pseudo-class matches a specified element that is the first child of another element.
- **Match the first <*p*> element**
- In the following example, the selector matches any **<p>** element that is the first child of any element:

Settings in the head section

```
p:first-child {
    color: blue;
}
```

In the body section

```
<h2>Match the first <i>p</i> element</h2>
<p>This is some text.</p>
<p>This is some text.</p>
<div>
    <p>This is some text.</p>
    <p>This is some text.</p>
</div>
```

Demo: w0210_pseudo_class_selector3.html

In the browser, …

Match the first *p* element

This is some text.

This is some text.

This is some text.

This is some text.

Source: https://www.w3schools.com/css/css_pseudo_classes.asp

First-child Pseudo-class

- **Match the first *<i>* element in all ** elements**
- In the following example, the selector matches the first **<i>** element in all **** elements:

Settings in the head section

```
span i:first-child {
    color: blue;
}
```

In the body section

```
<h2>Match the first <i>i</i> element in all <i>span</i> elements</h2>
<span>I am a <i>strong</i> person. I am a <i>strong</i> person.</span><br>
<span>I am a <i>strong</i> person. I am a <i>strong</i> person.</span>
```

Demo: w0210_pseudo_class_selector3.html

In the browser, …

Match the first *i* element in all *span* elements

I am a *strong* person. I am a *strong* person.
I am a *strong* person. I am a *strong* person.

Source: https://www.w3schools.com/css/css_pseudo_classes.asp

First-child Pseudo-class

Demo: w0210_pseudo_class_selector3.html

- **Match all *<i>* elements in all first child *<article>* elements**
- In the following example, the selector matches all **<i>** elements in **<article>** elements that are the first child of another element:

Settings in the head section

```
article:first-child i {
    color: blue;
}
```

In the body section

Demo: w0210_pseudo_class_selector3.html

```
<h2>Match all <i>i</i> elements in all first child <i>p</i> elements</h2>
<section>
    <article>I am a <i>strong</i> person. I am a <i>strong</i> person.</article>
    <article>I am a <i>strong</i> person. I am a <i>strong</i> person.</article>
</section>
<div>
    <article>I am a <i>strong</i> person. I am a <i>strong</i> person.</article>
    <article>I am a <i>strong</i> person. I am a <i>strong</i> person.</article>
</div>
```

In the browser, …

Match all *i* elements in all first child *p* elements

I am a *strong* person. I am a *strong* person.
I am a *strong* person. I am a *strong* person.
I am a *strong* person. I am a *strong* person.
I am a *strong* person. I am a *strong* person.

Source: https://www.w3schools.com/css/css_pseudo_classes.asp

CSS - The *:lang* Pseudo-class

- The **:lang** pseudo-class allows you to define special rules for different languages. In the example below, **:lang** defines the quotation marks for **<q>** elements with **lang="no"**:

Settings in the head section

```
<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>w0211 pseudo class selector-4</title>
    <style type="text/css">
    q:lang(no) {
        quotes: "===""===";
    }

    q:lang(hi) {
        quotes: "@""@";
    }
    </style>
</head>

<body>
    <p>Hello everyone, <q lang="no">We Will Go to Swimming Pool</q> <q lang="hi">
    Today</q>.</p>
    <p>In this example, :lang defines the quotation marks for q elements with
    lang="no":</p>
</body>
```

In the browser, …

Hello everyone, ===We Will Go to Swimming Pool=== @Today@.

In this example, :lang defines the quotation marks for q elements with lang="no":

Demo: w0211_pseudo_class_selector4.html

Source: https://www.w3schools.com/css/css_pseudo_classes.asp

Pseudo-element Selectors

- **What are Pseudo-Elements?**
- A CSS pseudo-element is used to style specified parts of an element.
- For example, it can be used to:
  - Style the first letter, or line, of an element
  - Insert content before, or after, the content of an element

Source: https://www.w3schools.com/css/css_pseudo_elements.asp

The ::first-line Pseudo-element

- The **::first-line** pseudo-element is used to add a special style to the first line of a text. The following example formats the first line of the text in all **<p>** elements.

The **::first-line** pseudo-element can only be applied to block-level elements.
The following properties apply to the **::first-line** pseudo-element:

- font properties
- color properties
- background properties
- word-spacing
- letter-spacing
- text-decoration
- vertical-align
- text-transform
- line-height
- clear

Source: https://www.w3schools.com/css/css_pseudo_elements.asp

Settings in the head section

```
p::first-line {
    color: #ff0000;
    font-variant: small-caps;
}
```

In the body section

```
<p>Morbi malesuada quam eu est accumsan
laoreet. Suspendisse pellentesque dolor
quis neque pretium fringilla. Nam sed
viverra libero. Lorem ipsum dolor sit
amet, consectetur adipiscing elit.
Suspendisse vitae est non tortor eleifend
hendrerit. Cras dictum tincidunt velit
quis euismod. </p>
```

In the browser, … **Demo: w0212_pseudo_element_selector.html**

MORBI MALESUADA QUAM EU EST ACCUMSAN LAOREET. SUSPENDISSE PELLENTESQUE DOLOR quis neque pretium fringilla. Nam sed viverra libero. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse vitae est non tortor eleifend hendrerit. Cras dictum tincidunt velit quis euismod.

The ::first-letter Pseudo-element

- The **::first-letter** pseudo-element is used to add a special style to the first letter of a text. The following example formats the first letter of the text in all **<p>** elements:

The ::first-letter pseudo-element can only be applied to block-level elements.
The following properties apply to the ::first-letter pseudo- element:

- font properties
- color properties
- background properties
- margin properties
- padding properties
- border properties
- text-decoration
- vertical-align (only if "float" is "none")
- text-transform
- line-height
- float
- clear

Source: https://www.w3schools.com/css/css_pseudo_elements.asp

Settings in the head section

```
p::first-letter {
    color: #ff0000;
    font-size: xx-large;
}
```

In the body section

```
<p>Morbi malesuada quam eu est accumsan laoreet. Suspendisse pellentesque dolor quis neque pretium fringilla. Nam sed viverra libero. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse vitae est non tortor eleifend hendrerit. Cras dictum tincidunt velit quis euismod. </p>
```

Demo: w0212_pseudo_element_selector.html

In the browser, …

Morbi malesuada quam eu est accumsan laoreet. Suspendisse pellentesque dolor quis neque pretium fringilla. Nam sed viverra libero. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse vitae est non tortor eleifend hendrerit. Cras dictum tincidunt velit quis euismod.

Pseudo-elements and HTML Classes

- Pseudo-elements can be combined with HTML classes. The example above will display the first letter of paragraphs with **class="intro"**, in red and in a larger size.

Settings in the head section

```
p.intro::first-letter {
    color: #ff0000;
    font-size: 200%;
}
```

In the body section

```
<p>Morbi malesuada quam eu est accumsan laoreet. Suspendisse pellentesque dolor quis neque pretium fringilla. Nam sed viverra libero. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse vitae est non tortor eleifend hendrerit. Cras dictum tincidunt velit quis euismod. </p>
```

Demo: w0212_pseudo_element_selector.html

In the browser, …

Morbi malesuada quam eu est accumsan laoreet. Suspendisse pellentesque dolor quis neque pretium fringilla. Nam sed viverra libero. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse vitae est non tortor eleifend hendrerit. Cras dictum tincidunt velit quis euismod.

Source: https://www.w3schools.com/css/css_pseudo_elements.asp

CSS - The ::before/::after/::marker Pseudo-element

- The **::before** pseudo-element can be used to insert some content before the content of an element.
- The **::after** pseudo-element can be used to insert some content after the content of an element.

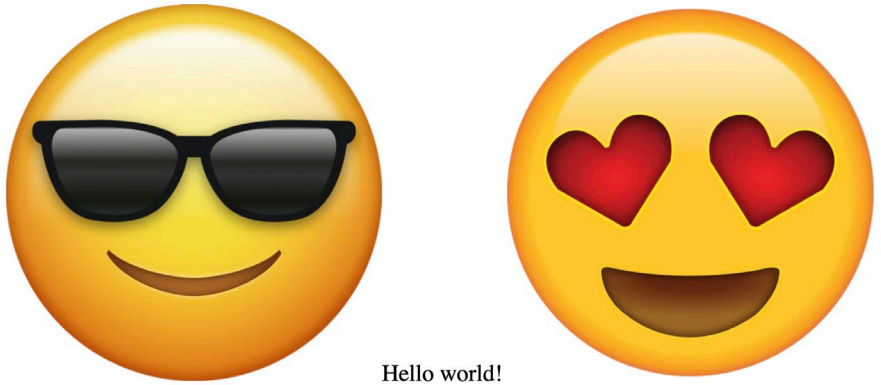
Settings in the head section

```css
p {
    font-size: 30px;
}

p::before {
    content: url(img/cool.png);
}

p::after {
    content: url(img/love.png);
}
```

In the body section

```html
<p>Hello world!</p>
```

In the browser, …



Demo: w0213_pseudo_element_selector2.html

Source: https://www.w3schools.com/css/css_pseudo_elements.asp

CSS - The ::before/::after/::marker Pseudo-element

- The **::marker** pseudo-element selects the markers of list items.

Settings in the head section

```
::marker {
    color: blue;
    font-size: 30px;
}
```

In the body section

```
<span style="font-size: 40px;">
    <li>abc</li>
    <li>def</li>
    <li>ghi</li>
</span>
```

In the browser, …

- abc
- def
- ghi

Demo: **w0213_pseudo_element_selector2.html**

Source: https://www.w3schools.com/css/css_pseudo_elements.asp

Attribute Selectors –
CSS [attribute] Selectors

- It is possible to style HTML elements that have specific attributes or attribute values.
- The **[attribute]** selector is used to select elements with a specified attribute. The following example selects all **<a>** elements with a target attribute:

Settings in the head section

```
a[target] {
    background-color: yellowgreen;
}
```

Demo: w0214_attribute_selector.html

In the body section

```
<h3>example 1</h3>
<div><a href="#">www.yahoo.com</a>
    <a href="#" target="n">www.google.com</a>
    <a href="#">www.apple.com</a></div>
```

In the browser, …

example 1

www.yahoo.com www.google.com www.apple.com

Source: https://www.w3schools.com/css/css_attribute_selectors.asp

Attribute Selectors –
CSS [attribute="value"] Selectors

- The **[attribute="value"]** selector is used to select elements with a specified attribute and value.
- The following example selects all **<a>** elements with a **target="_blank"** attribute:

Settings in the head section

```
p[target="_none"] {
    background-color: skyblue;
}
```

Demo: w0214_attribute_selector.html

In the body section

```
<h3>example 2</h3>
<div>
    <p target="_none">www.tesla.com</p>
    <p>www.toyota.com</p>
    <p>www.yahoo.jp</p>
</div>
```

In the browser, …

example 2

www.tesla.com

www.toyota.com

www.yahoo.jp

Source: https://www.w3schools.com/css/css_attribute_selectors.asp

Attribute Selectors –
CSS [attribute~="value"] Selectors

- The **[attribute~="value"]** selector is used to select elements with an attribute value containing a specified word.
- The following example selects all elements with a title attribute that contains a space-separated list of words, one of which is **"flower"**:

Settings in the head section

```
article[target~="_y"] {
    background-color: blue;
}
```

In the body section

```
<h3>example 3</h3>
<div>
    <article target="_ny">www.ntnu.edu.tw</article>
    <article target="_y">www.ntu.edu.tw</article>
    <article target="_y n">www.cycu.edu.tw</article>
</div>
```

In the browser, …

example 3

www.ntnu.edu.tw
www.ntu.edu.tw
www.cycu.edu.tw

Demo: w0214_attribute_selector.html

Source: https://www.w3schools.com/css/css_attribute_selectors.asp

Attribute Selectors –
CSS [attribute|="value"] Selector

- The **[attribute|="value"]** selector is used to select elements with the specified attribute, whose value can be exactly the specified value or the specified value followed by a hyphen **(-)**.

Settings in the head section

```
[class|="top"] {
    background: yellow;
}
```

In the body section

```
<h3>example 1</h3>
<p class="top-1">Ohhhh</p>
<p class="top-2">Ohhh</p>
<p class="top123">roarrrr</p>
```

In the browser, …

example 1

Ohhhh

Ohhh

roarrrr

Demo: w0215_attribute_selector2.html

Attribute Selectors –
CSS [attribute|="value"] Selector

- The **[attribute^="value"]** selector is used to select elements with the specified attribute, whose value starts with the specified value. The following example selects all elements with a class attribute value that starts with **"dog"**:

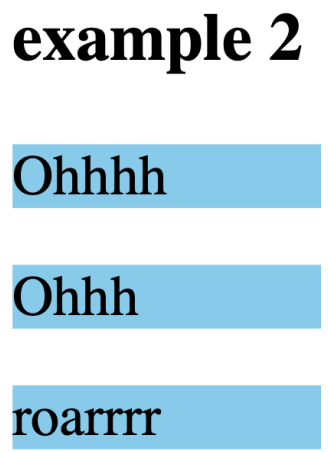
Settings in the head section

```
[class^="dog"] {
    background: skyblue;
}
```

In the body section

```
<h3>example 2</h3>
<p class="dog-1">Ohhhh</p>
<p class="dog-2">Ohhh</p>
<p class="dog123">roarrrr</p>
```

In the browser, …



Demo: w0215_attribute_selector2.html

Attribute Selectors –
CSS [attribute|="value"] Selector

- The **[attribute$="value"]** selector is used to select elements whose attribute value ends with a specified value. The following example selects all elements with a class attribute value that ends with **"cat"**:

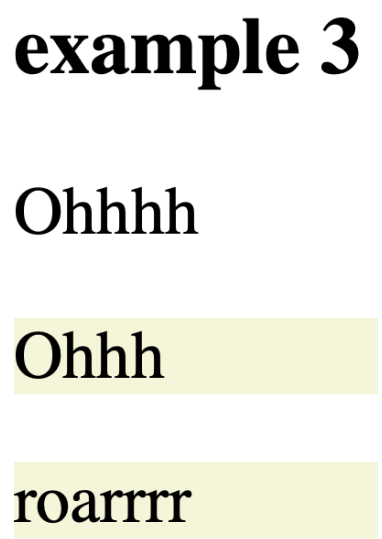
Settings in the head section

```
[class$="cat"] {
    background: beige;
}
```

In the body section

```
<h3>example 3</h3>
<p class="cat-1">Ohhhh</p>
<p class="2-cat">Ohhh</p>
<p class="123cat">roarrrr</p>
```

In the browser, …



Demo: w0215_attribute_selector2.html

Attribute Selectors –
CSS [attribute|="value"] Selector

- The **[attribute*="value"]** selector is used to select elements whose attribute value contains a specified value. The following example selects all elements with a class attribute value that contains **"po"**:

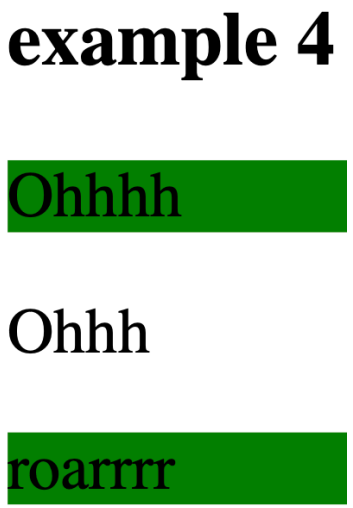
Settings in the head section

```
[class*="po"] {
    background: green;
}
```

In the body section

```
<h3>example 4</h3>
<p class="pop-1">Ohhhh</p>
<p class="op-2">Ohhh</p>
<p class="pop123">roarrrr</p>
```

In the browser, …



Demo: w0215_attribute_selector2.html

Units

- CSS has several different units for expressing a length.
- Many CSS properties take "length" values, such as width, margin, padding, and font-size.

Settings in the head section

```
p {
    font-size: 20px;
    line-height: 2em;
}
```

In the body section

```
<p>Quisque vitae pretium velit, eu pharetra sapien. Ut ultricies nibh non dui tincidunt gravida. Nunc id est a augue congue dictum. Praesent vitae vehicula leo. Nam justo justo, scelerisque ut congue vitae, congue malesuada sapien. Suspendisse in odio at odio vulputate imperdiet vel nec risus. Quisque non tempus diam, non volutpat lectus. Sed vitae velit et neque vestibulum sollicitudin. Integer at lectus et erat dapibus molestie. Mauris id velit ac urna ullamcorper tempus ut nec ligula. Duis a quam venenatis, rhoncus dui non, finibus lacus. Curabitur porta hendrerit est, facilisis cursus ante viverra volutpat. Sed vitae ante in urna congue fermentum. Cras lobortis magna felis, eget faucibus justo luctus eget. Duis euismod commodo arcu sed ultrices.</p>
```

In the browser, …

Quisque vitae pretium velit, eu pharetra sapien. Ut ultricies nibh non dui tincidunt gravida. Nunc id est a augue congue dictum. Praesent vitae vehicula leo. Nam justo justo, scelerisque ut congue vitae, congue malesuada sapien. Suspendisse in odio at odio vulputate imperdiet vel nec risus. Quisque non tempus diam, non volutpat lectus. Sed vitae velit et neque vestibulum sollicitudin. Integer at lectus et erat dapibus molestie. Mauris id velit ac urna ullamcorper tempus ut nec ligula. Duis a quam venenatis, rhoncus dui non, finibus lacus. Curabitur porta hendrerit est, facilisis cursus ante viverra volutpat. Sed vitae ante in urna congue fermentum. Cras lobortis magna felis, eget faucibus justo luctus eget. Duis euismod commodo arcu sed ultrices.

Demo: w0216_unit.html

Source: https://www.w3schools.com/css/css_units.asp

Units

Unit	Description
em	Relative to the font-size of the element (2em means 2 times the size of the current font)
ex	Relative to the x-height of the current font (rarely used)
ch	Relative to width of the "0" (zero)
rem	Relative to font-size of the root element
vw	Relative to 1% of the width of the viewport*
vh	Relative to 1% of the height of the viewport*
vmin	Relative to 1% of viewport's* smaller dimension
vmax	Relative to 1% of viewport's* larger dimension
%	Relative to the parent element

Source: https://www.w3schools.com/css/css_units.asp

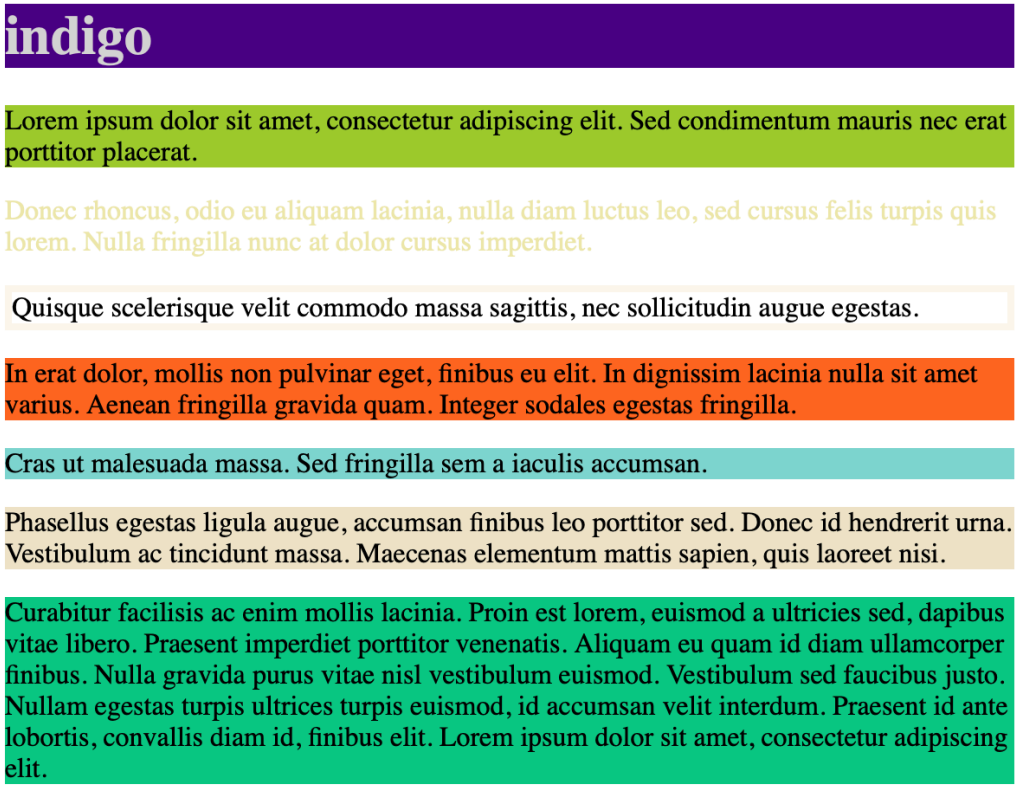
Colors – Simple Colors

- Colors are specified using predefined color names, or RGB, HEX, HSL, RGBA, HSLA values.

In the body section

```
<h1 style="background-color: indigo; color:lightgray;">indigo</h1>
<p style="background-color: yellowgreen;">Lorem ipsum dolor sit amet,
consectetur adipiscing elit. Sed condimentum mauris nec erat porttitor
placerat.</p>
<p style="color: palegoldenrod;">Donec rhoncus, odio eu aliquam lacinia,
nulla diam luctus leo, sed cursus felis turpis quis lorem. Nulla fringilla
nunc at dolor cursus imperdiet.</p>
<p style="border: 4px solid seashell;">Quisque scelerisque velit commodo
massa sagittis, nec sollicitudin augue egestas.</p>
<p style="background-color: rgb(255, 100, 30)">In erat dolor, mollis non
pulvinar eget, finibus eu elit. In dignissim lacinia nulla sit amet varius.
Aenean fringilla gravida quam. Integer sodales egestas fringilla.</p>
<p style="background-color:#81D8D0">Cras ut malesuada massa. Sed fringilla
sem a iaculis accumsan.</p>
<p style="background-color: hsl(46, 50%, 86%);">Phasellus egestas ligula
augue, accumsan finibus leo porttitor sed. Donec id hendrerit urna.
Vestibulum ac tincidunt massa. Maecenas elementum mattis sapien, quis
laoreet nisi.
</p>
<p style="background-color: rgba(10, 200, 134)">Curabitur facilisis ac enim
mollis lacinia. Proin est lorem, euismod a ultricies sed, dapibus vitae
libero. Praesent imperdiet porttitor venenatis. Praesent id ante lobortis,
convallis diam id, finibus elit. Lorem ipsum dolor sit amet, consectetur
adipiscing elit.</p>
```

In the browser, …



Demo: w0217_colors.html

Source: https://www.w3schools.com/css/css_colors.asp

Colors – Opacity/ Transparency

- The **opacity** property specifies the opacity/transparency of an element. It can take a value from 0.0 - 1.0. The lower value, the more transparent:

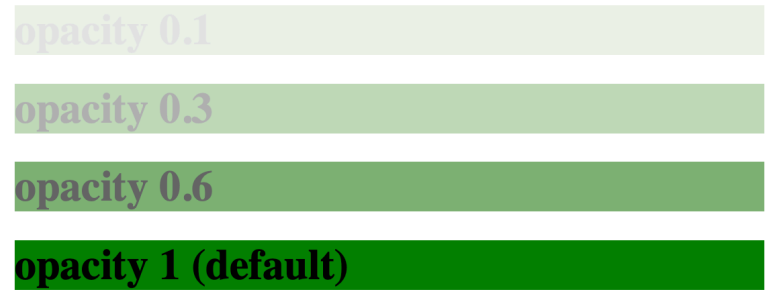
Settings in the head section

```
div {
    background-color: green;
}

div.first {
    opacity: 0.1;
}

div.second {
    opacity: 0.3;
}

div.third {
    opacity: 0.6;
}
```

In the body section

```
<h1>Transparent Boxes</h1>
<p>When using the opacity property to add
transparency to the background of an element, all
of its child elements become transparent as well.
This can make the text inside a fully transparent
element hard to read:</p>
<div class="first">
    <h1>opacity 0.1</h1>
</div>
<div class="second">
    <h1>opacity 0.3</h1>
</div>
<div class="third">
    <h1>opacity 0.6</h1>
</div>
<div>
    <h1>opacity 1 (default)</h1>
</div>
```

In the browser, …



Demo: w0218_colors2.html

Source: https://www.w3schools.com/css/css_background.asp

Colors – Background-image

- The CSS background properties are used to add background effects for elements.
  a) background-color
  b) background-image
  c) background-repeat (no-repeat or repeat)
  d) background-attachment (scroll or fixed)
  e) background-position
  f) background (shorthand property)

Colors – Background-image

- The **background-image** property specifies an image to use as the background of an element.

Settings in the head section

```
body {
    background-image: url("img/cool.png");
    background-repeat: no-repeat;
    background-position: left top;
    margin-right: 200px;
    background-attachment: fixed;
    background-size: 10%;
}
```

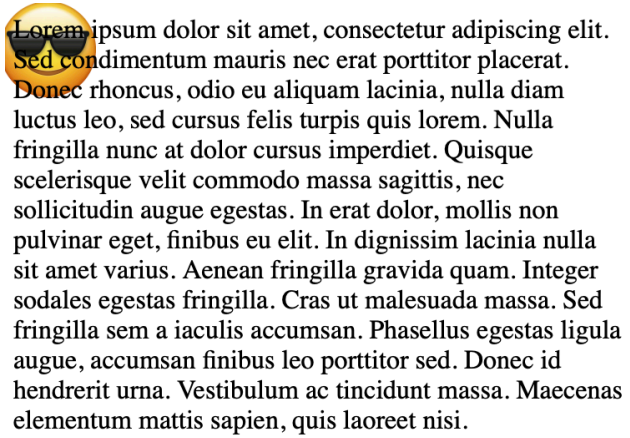
In the body section

```
<div>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed
condimentum mauris nec erat porttitor placerat. Donec rhoncus, odio eu
aliquam lacinia, nulla diam luctus leo, sed cursus felis turpis quis lorem.
Nulla fringilla nunc at dolor cursus imperdiet. Quisque scelerisque velit
commodo massa sagittis, nec sollicitudin augue egestas. In erat dolor,
mollis non pulvinar eget, finibus eu elit. In dignissim lacinia nulla sit
amet varius. Aenean fringilla gravida quam. Integer sodales egestas
fringilla. Cras ut malesuada massa. Sed fringilla sem a iaculis accumsan.
Phasellus egestas ligula augue, accumsan finibus leo porttitor sed. Donec
id hendrerit urna. Vestibulum ac tincidunt massa. Maecenas elementum mattis
sapien, quis laoreet nisi.</div>
```

Demo: w0219_colors3.html

In the browser, …

If **no-repeat**, …



If **repeat**, …

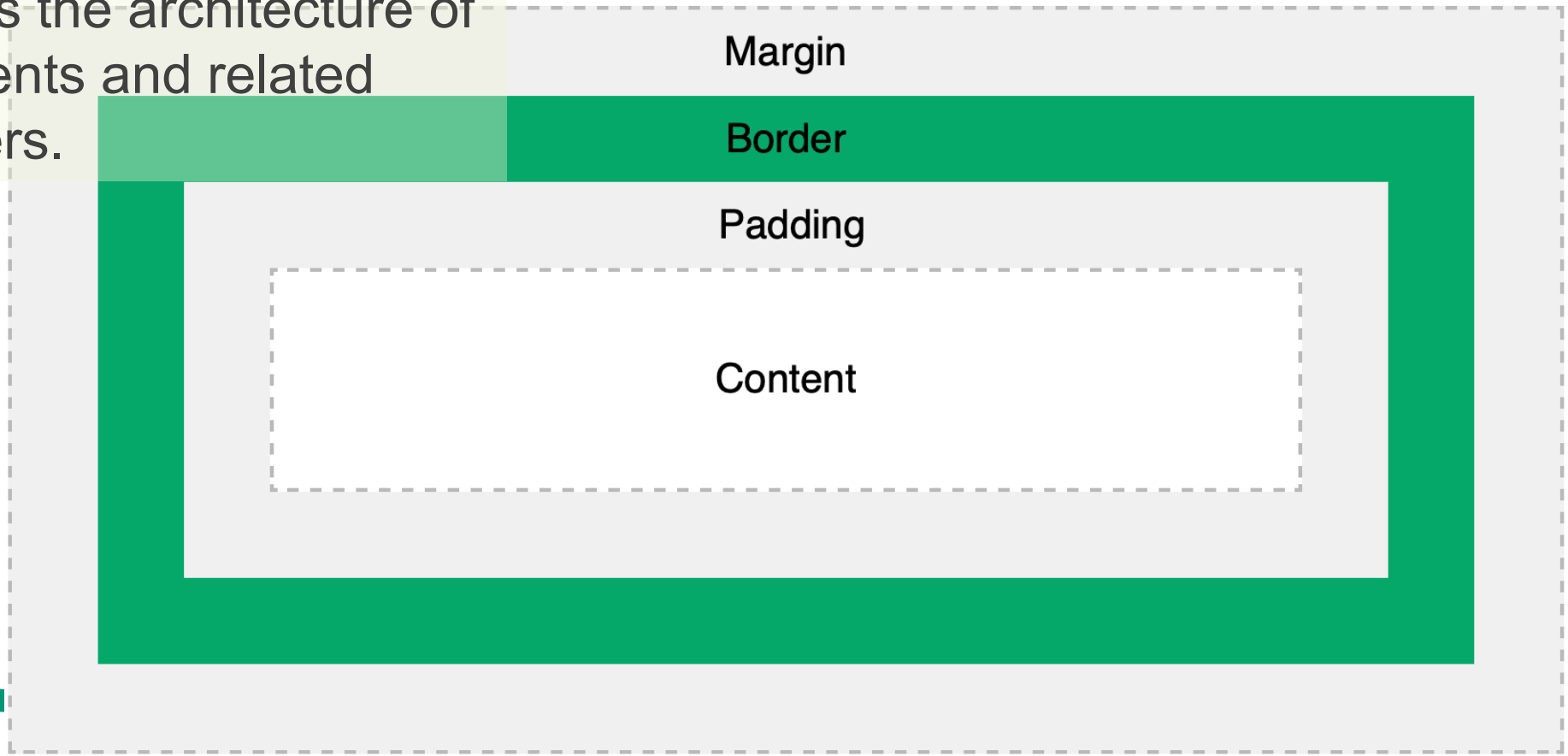
Source: https://www.w3schools.com/css/css_background_attachment.asp

Boundaries – Box Models

- In CSS, the term "box model" is used when talking about design and layout.
- The CSS box model is essentially a box that wraps around every HTML element. It consists of: content, padding, borders and margins. The image below illustrates the box model:
- Explanation of the different parts:
  - **Content** - The content of the box, where text and images appear
  - **Padding** - Clears an area around the content. The padding is transparent
  - **Border** - A border that goes around the padding and content
  - **Margin** - Clears an area outside the border. The margin is transparent
- The box model allows us to add a border around elements, and to define space between elements.

Boundaries – Box Models

This is the architecture of elements and related borders.



Boundaries – Outlines

- CSS has the following outline properties:
  a) **outline-style**
  b) **outline-color**
  c) **outline-width**
  d) **outline-offset**
  e) **outline**

  a) **dotted** - Defines a dotted outline
  b) **dashed** - Defines a dashed outline
  c) **solid** - Defines a solid outline
  d) **double** - Defines a double outline
  e) **groove** - Defines a 3D grooved outline
  f) **ridge** - Defines a 3D ridged outline
  g) **inset** - Defines a 3D inset outline
  h) **outset** - Defines a 3D outset outline
  i) **none** - Defines no outline
  j) **hidden** - Defines a hidden outline

Boundaries – Outlines

Settings in the head section

```css
p.dotted {
    outline-style: dotted;
}

p.dashed {
    outline-style: dashed;
}

p.solid {
    outline-style: solid;
}

p.double {
    outline-style: double;
}

p.groove {
    outline-style: groove;
}
```

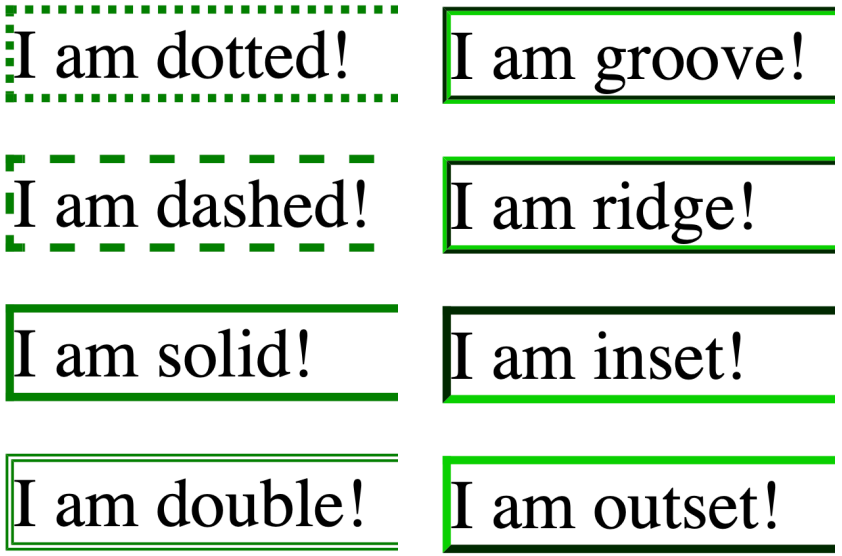
```css
p.ridge {
    outline-style: ridge;
}

p.inset {
    outline-style: inset;
}

p.outset {
    outline-style: outset;
}

p {
    font-size: 25px;
    outline-color: green;
}
```

Demo: w0220_outlines.html

In the body section

```html
<p class="dotted">I am dotted!</p>
<p class="dashed">I am dashed!</p>
<p class="solid">I am solid!</p>
<p class="double">I am double!</p>
<p class="groove">I am groove!</p>
<p class="ridge">I am ridge!</p>
<p class="inset">I am inset!</p>
<p class="outset">I am outset!</p>
```

In the browser, …



Boundaries – Borders

- The border-style property specifies what kind of border to display. The following values are allowed:
  - **dotted** - Defines a dotted border
  - **dashed** - Defines a dashed border
  - **solid** - Defines a solid border
  - **double** - Defines a double border
  - **groove** - Defines a 3D grooved border. The effect depends on the border-color value
  - **ridge** - Defines a 3D ridged border. The effect depends on the border-color value
  - **inset** - Defines a 3D inset border. The effect depends on the border-color value
  - **outset** - Defines a 3D outset border. The effect depends on the border-color value
  - **none** - Defines no border
  - **hidden** - Defines a hidden border
- The border-style property can have from one to four values (for the top border, right border, bottom border, and the left border).

Boundaries – Borders

Settings in the head section

```
p.dotted {
    border-style: dotted;
}
p.dashed {
    border-style: dashed;
}
p.solid {
    border-style: solid;
}
p.double {
    border-style: double;
}
p.groove {
    border-style: groove;
}
p.ridge {
    border-style: ridge;
}
```

```
p.inset {
    border-style: inset;
}
p.outset {
    border-style: outset;
}
p.none {
    border-style: none;
}
p.hidden {
    border-style: hidden;
}
p.mix {
    border-style: dotted dashed solid double;
}
p.mix2 {
    border-top-style: dotted;
    border-right-style: solid;
    border-bottom-style: dotted;
    border-left-style: solid;
}
```

Demo: w0221_borders.html

In the body section

```
<p class="dotted">A dotted border.</p>
<p class="dashed">A dashed border.</p>
<p class="solid">A solid border.</p>
<p class="double">A double border.</p>
<p class="groove">A groove border.</p>
<p class="ridge">A ridge border.</p>
<p class="inset">An inset border.</p>
<p class="outset">An outset border.</p>
<p class="none">No border.</p>
<p class="hidden">A hidden border.</p>
<p class="mix">A mixed border.</p>
<p class="mix2">A mixed border style.</p>
```

In the browser, …

A dotted border.

A dashed border.

A solid border.

A double border.

A groove border.

A ridge border.

An inset border.

An outset border.

No border.

A hidden border.

A mixed border.

A mixed border style.

Boundaries – Margins

- The CSS margin properties are used to create space around elements, outside of any defined borders. With CSS, you have full control over the margins. There are properties for setting the margin for each side of an element (top, right, bottom, and left).
- CSS has properties for specifying the margin for each side of an element:
  - **margin-top**
  - **margin-right**
  - **margin-bottom**
  - **margin-left**
- All the margin properties can have the following values:
  - **auto** - the browser calculates the margin
  - ***length*** - specifies a margin in px, pt, cm, etc.
  - **%** - specifies a margin in % of the width of the containing element
  - **inherit** - specifies that the margin should be inherited from the parent element

Source: https://www.w3schools.com/css/css_margin.asp

Boundaries – Margins

Settings in the head section

```css
div {
    border: 1px solid red;
    margin-left: 100px;

    margin-top: 100px;
    margin-bottom: 100px;
    margin-right: 150px;

    background-color: lightblue;
}

p.ex1 {
    margin-left: inherit;
}
```

In the body section

```html
<h2>Use of the inherit value</h2>
<p>Let the left margin be inherited from the
parent element:</p>
<div>
    <p class="ex1">This paragraph has an
    inherited left margin (from the div element).
    </p>
```

In the browser, …

Use of the inherit value

Let the left margin be inherited from the parent element:

This paragraph has an inherited left margin (from the div element).

Demo: w0222_margins.html

Source: https://www.w3schools.com/css/css_margin.asp

Boundaries – Paddings

- The CSS padding properties are used to generate space around an element's content, inside of any defined **borders**. With CSS, you have full control over the **padding**. There are properties for setting the padding for each side of an element (**top**, **right**, **bottom**, and **left**). CSS has properties for specifying the padding for each side of an element:
  a) **padding-top**
  b) **padding-right**
  c) **padding-bottom**
  d) **padding-left**

Source: https://www.w3schools.com/css/css_padding.asp

Boundaries – Paddings

- All the padding properties can have the following values:
  - ***a) length*** - specifies a padding in px, pt, cm, etc.
  - ***b) %*** - specifies a padding in % of the width of the containing element
  - **c) inherit** - specifies that the padding should be inherited from the parent element.

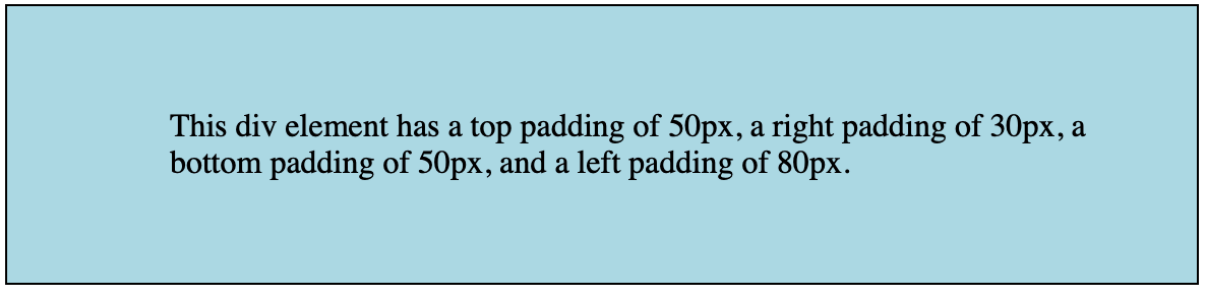
Settings in the head section

```
div {
    border: 1px solid black;
    background-color: lightblue;
    padding-top: 50px;
    padding-right: 30px;
    padding-bottom: 50px;
    padding-left: 80px;
}
```

In the body section

```
<div>This div element has a top padding of 50px,
a right padding of 30px, a bottom padding of
50px, and a left padding of 80px.</div>
```

In the browser, …



Demo: w0223_paddings.html

Boundaries – Height/Width

- The CSS **height** and **width** properties are used to set the height and width of an element. The CSS max-width property is used to set the maximum width of an element.
- The height and width properties may have the following values:
  - **auto** - This is default. The browser calculates the height and width
  - **length** - Defines the height/width in px, cm, etc.
  - **%** - Defines the height/width in percent of the containing block
  - **initial** - Sets the height/width to its default value
  - **inherit** - The height/width will be inherited from its parent value

Boundaries – Height/Width

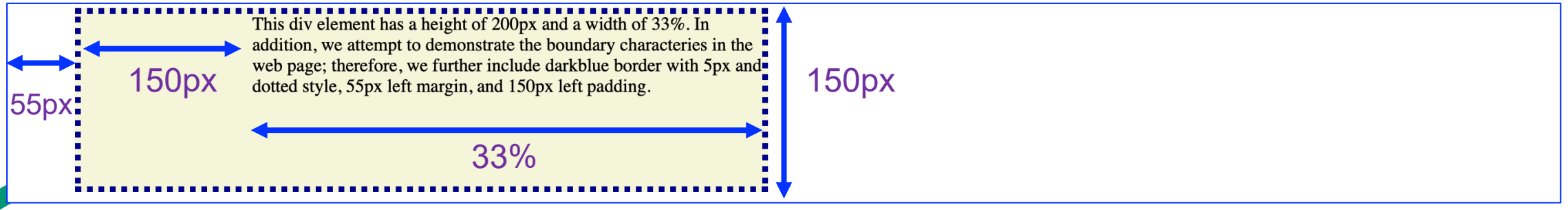
Settings in the head section

```
div {
    height: 150px;
    width: 33%;
    background-color: beige;
    border-width: 5px;
    border-color: darkblue;
    border-style: dotted;
    margin-left: 55px;
    padding-left: 150px;
}
```

In the body section

```
<div>This div element has a height of 200px and a
width of 33%. In addition, we attempt to
demonstrate the boundary characteries in the web
page; therefore, we further include darkblue
border with 5px and dotted style, 55px left
margin, and 150px left padding.</div>
```

In the browser, …



Demo: w0224_height_width.html

Source: https://www.w3schools.com/css/css_dimension.asp

Texts – Color & Alignment (1/2)

- The color property is used to set the **color** of the text.
- We also can define both the **background-color** property and the **color** property.
- The text-align property is used to set the horizontal alignment of a text.
- A text can be left (**left**) or right aligned (**right**), centered (**center**), or justified (**justify**).
- The following example shows center aligned and left and right-aligned text (left alignment is the default if text direction is left-to-right, and right alignment is the default if text direction is right-to-left).

Source: https://www.w3schools.com/css/css_text.asp

Source: https://www.w3schools.com/css/css_text_align.asp

Settings in the head section

```css
p.nor {
    color: lightblue;
    background-color: navy;
    font-size: 28px;
}

p.last {
    color: greenyellow;
    background-color: green;
    font-size: 28px;
}
```

Texts – Color & Alignment (1/2)

In the body section

```html
<div>
    <p class="nor" style="text-align: center;">[text-align: center] Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla venenatis efficitur magna, ac auctor ante hendrerit eu. Vivamus tincidunt, magna vel vulputate rhoncus, nisl ante condimentum tellus, eu cursus nisl nisl ut augue. </p>
    <p class="nor" style="text-align: left;">[text-align: left] Nullam at mauris nec lectus hendrerit lacinia ac ut odio. Aliquam vitae nisl at lacus porta ultricies quis eu sapien. Sed sodales lobortis luctus.</p>
    <p class="nor" style="text-align: justify;">[text-align: justify] Fusce et ligula varius, porta velit vitae, blandit sem. Lorem ipsum dolor sit amet, consectetur adipiscing elit.</p>
    <p class="nor" style="text-align: right;">[text-align: right] Curabitur tempor egestas ante in aliquam. Nullam vitae velit consectetur mauris eleifend molestie. Nulla ex risus, lacinia nec ligula vitae, tincidunt pellentesque ligula. Aenean rhoncus odio non sodales semper.</p>
    <p class="last" style="text-align-last: left;">[text-align-last: left] Suspendisse tortor ligula, interdum ac nulla eget, posuere commodo ante. Fusce vitae orci ut urna tempus gravida. Pellentesque et metus lacus. Nunc ac leo in tellus lacinia placerat. Nulla finibus lacus nec tellus porttitor, sit amet aliquam lectus rhoncus.</p>
    <p class="last" style="text-align-last: right">[text-align-last: right] Vestibulum egestas condimentum velit, sit amet lacinia augue feugiat congue. Ut laoreet bibendum lorem, et tincidunt nisi vulputate rhoncus. Nam ante velit, aliquet et consequat ut, pretium eu dolor. Cras posuere lectus quis ligula pharetra, sed condimentum dolor molestie. </p>
    <p class="last" style="text-align-last: center;">[text-align-last: center] Donec tristique diam neque, vel porta diam dignissim sit amet. Nam dignissim felis id condimentum sodales. Quisque dignissim dictum pharetra. Duis sagittis tempor tristique. Fusce suscipit aliquam ipsum, id hendrerit ex. Etiam placerat eu lacus ut feugiat.</p>
    <p class="last" style="text-align-last: justify;">[text-align-last: justify] In hac habitasse platea dictumst. Nunc in pharetra risus. Quisque cursus sagittis congue. Nullam odio est, blandit eget sodales a, dapibus nec orci. Suspendisse consectetur hendrerit nunc. Quisque venenatis ipsum condimentum placerat dictum. Proin id pellentesque nisl.
    </p>
</div>
```

In the browser, …

[text-align: center] Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla venenatis efficitur magna, ac auctor ante hendrerit eu. Vivamus tincidunt, magna vel vulputate rhoncus, nisl ante condimentum tellus, eu cursus nisl nisl ut augue.

[text-align: left] Nullam at mauris nec lectus hendrerit lacinia ac ut odio. Aliquam vitae nisl at lacus porta ultricies quis eu sapien. Sed sodales lobortis luctus.

[text-align: justify] Fusce et ligula varius, porta velit vitae, blandit sem. Lorem ipsum dolor sit amet, consectetur adipiscing elit.

[text-align: right] Curabitur tempor egestas ante in aliquam. Nullam vitae velit consectetur mauris eleifend molestie. Nulla ex risus, lacinia nec ligula vitae, tincidunt pellentesque ligula. Aenean rhoncus odio non sodales semper.

[text-align-last: left] Suspendisse tortor ligula, interdum ac nulla eget, posuere commodo ante. Fusce vitae orci ut urna tempus gravida. Pellentesque et metus lacus. Nunc ac leo in tellus lacinia placerat. Nulla finibus lacus nec tellus porttitor, sit amet aliquam lectus rhoncus.

[text-align-last: right] Vestibulum egestas condimentum velit, sit amet lacinia augue feugiat congue. Ut laoreet bibendum lorem, et tincidunt nisi vulputate rhoncus. Nam ante velit, aliquet et consequat ut, pretium eu dolor. Cras posuere lectus quis ligula pharetra, sed condimentum dolor molestie.

[text-align-last: center] Donec tristique diam neque, vel porta diam dignissim sit amet. Nam dignissim felis id condimentum sodales. Quisque dignissim dictum pharetra. Duis sagittis tempor tristique. Fusce suscipit aliquam ipsum, id hendrerit ex. Etiam placerat eu lacus ut feugiat.

[text-align-last: justify] In hac habitasse platea dictumst. Nunc in pharetra risus. Quisque cursus sagittis congue. Nullam odio est, blandit eget sodales a, dapibus nec orci. Suspendisse consectetur hendrerit nunc. Quisque venenatis ipsum condimentum placerat dictum. Proin id pellentesque nisl.

Source: https://www.w3schools.com/css/css_text_align.asp Source: https://www.w3schools.com/css/css_text.asp

Texts – Alignment (2/2)

- The **vertical-align** property sets the vertical alignment of an element.
- The **direction** and **unicode-bidi** properties can be used to change the text direction of an element:

Settings in the head section

```
p,span {
    font-size: 30px
}
span.a {
    vertical-align: baseline;
}
span.b {
    vertical-align: text-top;
}
span.c {
    vertical-align: text-bottom;
}
span.d {
    vertical-align: sub;
}
span.e {
    vertical-align: super;
}
```

In the body section

```
<h1>vertical-alignment</h1>
<p>y = a<span class="a">(baseline)</span>x<span class="b">
(top)</span> + a<span class="c">(bottom)</span>x<span
class="d">(sub)</span> + a<span class="e">(super)</span>
x3 + c</p>
<h1>direction</h1>
<p>this is original text.</p>
<p style="direction:rtl; unicode-bidi: bidi-override;">
this is right-to-left text direction</p>
```

In the browser, …

vertical-alignment

$y = a(\text{baseline})x(\text{top}) + a(\text{bottom})x_{(\text{sub})} + a^{(\text{super})}x3 + c$

direction

this is original text.

noitcerid txet tfel-ot-thgir si siht

Demo: w0226_alignment.html

Source: https://www.w3schools.com/css/css_text_align.asp

Texts – Decoration

The text-decoration-line property is used to add a decoration line to text.

Property	Description
text-decoration	Sets all the text-decoration properties in one declaration
text-decoration-color	Specifies the color of the text-decoration
text-decoration-line	Specifies the kind of text decoration to be used (underline, overline, etc.)
text-decoration-style	Specifies the style of the text decoration (solid, dotted, etc.)
text-decoration-thickness	Specifies the thickness of the text decoration line

Source: https://www.w3schools.com/css/css_text_decoration.asp

Texts – Decoration

Settings in the head section

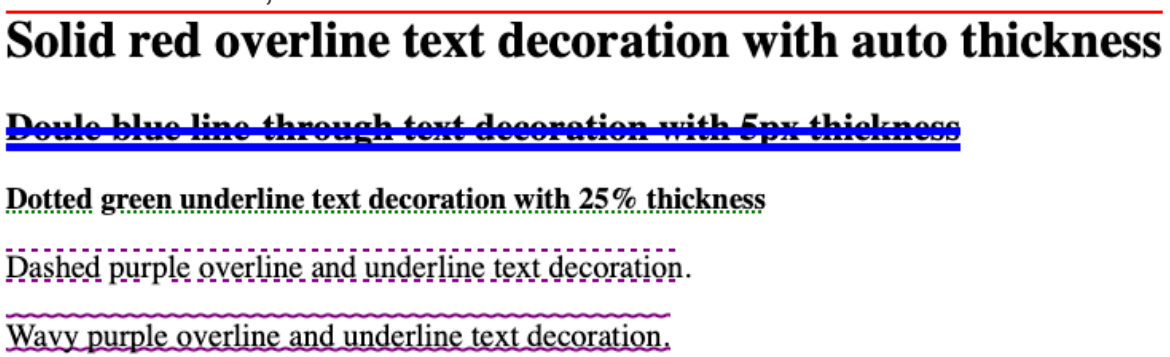
```css
h1 {
    text-decoration-line: overline;
    text-decoration-color: red;
    text-decoration-style: solid;
    /* this is default */
    text-decoration-thickness: auto;
    /* this is default */
}
h2 {
    text-decoration-line: line-through;
    text-decoration-color: blue;
    text-decoration-style: double;
    text-decoration-thickness: 5px;
}
h3 {
    text-decoration-line: underline;
    text-decoration-color: green;
    text-decoration-style: dotted;
    text-decoration-thickness: 25%;
}
p {
    text-decoration-line: overline underline;
    text-decoration-color: purple;
    text-decoration-style: dashed;
    font-size: 20px;
}
```

```css
article {
    text-decoration-line: overline underline;
    text-decoration-color: purple;
    text-decoration-style: wavy;
    font-size: 20px;
}
```

In the body section

```html
<h1>Solid red overline text decoration with auto thickness</h1>
<h2>Doule blue line-through text decoration with 5px thickness</h2>
<h3>Dotted green underline text decoration with 25% thickness</h3>
<p>Dashed purple overline and underline text decoration.</p>
<article>Wavy purple overline and underline text decoration.</article>
```

In the browser, …



Source: https://www.w3schools.com/css/css_text_transformation.asp

Texts – Transformation

- The **text-transform** property is used to specify uppercase and lowercase letters in a text. It can be used to turn everything into uppercase or lowercase letters, or capitalize the first letter of each word.

Settings in the head section

```
<h1>Using the text-transform property</h1>
<p class="uppercase">This text is transformed to uppercase.</p>
<p class="lowercase">This text is transformed to lowercase.</p>
<p class="capitalize">This text is capitalized.</p>
```

Demo: w0228_text_transformation.html

In the body section

```
p.uppercase {
    text-transform: uppercase;
    font-size: 28px;
}

p.lowercase {
    text-transform: lowercase;
    font-size: 28px;
}

p.capitalize {
    text-transform: capitalize;
    font-size: 28px;
}
```

In the browser, …

Using the text-transform property

THIS TEXT IS TRANSFORMED TO UPPERCASE.

this text is transformed to lowercase.

This Text Is Capitalized.

Source: https://www.w3schools.com/css/css_text_transformation.asp

Texts – Spacing

- The **text-indent** property is used to specify the indentation of the first line of a text.
- The **letter-spacing** property is used to specify the space between the characters in a text.
- The **line-height** property is used to specify the space between lines.
- The **word-spacing** property is used to specify the space between the words in a text.
- The **white-space** property specifies how white-space inside an element is handled.

Source: https://www.w3schools.com/css/css_text_spacing.asp

Texts – Spacing

Demo: w0229_text_spacing.html

In the body section

```
<p style="text-indent: 100px;"><b>[text-indent: 100px]</b> Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec pulvinar efficitur arcu, iaculis cursus metus sollicitudin nec. Cras lectus sapien, efficitur et mi eu, pharetra accumsan ipsum. In vestibulum auctor fermentum.</p>
<p style="letter-spacing: 10px;"><b>[letter-spacing: 10px]</b> Etiam eget rhoncus tortor. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis consequat imperdiet malesuada. Donec mollis in elit nec imperdiet. Nam iaculis facilisis rhoncus. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. In nec iaculis erat.</p>
<p style="line-height: 40px;"><b>[line-height: 40px]</b> Praesent et ligula magna. Nam lacinia aliquam lacus. Sed eleifend quam in risus cursus dapibus. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.</p>
<p style="word-spacing: 100px;"><b>[word-spacing: 100px]</b> Sed pharetra, nulla nec ultricies maximus, enim magna vulputate nunc, sed venenatis urna erat id urna. Vestibulum orci ligula, venenatis vitae dui eget, imperdiet consectetur diam. Aenean vitae massa augue.</p>
<p style="white-space: nowrap;"><b>[white-space: nowrap]</b> Aliquam ultrices leo eu libero dignissim pellentesque. Maecenas aliquet tempor lacus, eget fringilla ex fringilla sit amet. Pellentesque id elementum libero, eu dignissim metus.</p>
```

In the browser, …

[text-indent: 100px] Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec pulvinar efficitur arcu, iaculis cursus metus sollicitudin nec. Cras lectus sapien, efficitur et mi eu, pharetra accumsan ipsum. In vestibulum auctor fermentum.

[letter-spacing: 10px] Etiam eget rhoncus tortor. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis consequat imperdiet malesuada. Donec mollis in elit nec imperdiet. Nam iaculis facilisis rhoncus. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. In nec iaculis erat.

[line-height: 40px] Praesent et ligula magna. Nam lacinia aliquam lacus. Sed eleifend quam in risus cursus dapibus. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

[word-spacing: 100px] Sed pharetra, nulla nec ultricies maximus, enim magna vulputate nunc, sed venenatis urna erat id urna. Vestibulum orci ligula, venenatis vitae dui eget, imperdiet consectetur diam. Aenean vitae massa augue.

[white-space: nowrap] Aliquam ultrices leo eu libero dignissim pellentesque. Maecenas aliqu

Source: https://www.w3schools.com/css/css_text_spacing.asp

Texts – Shadow

- The text-shadow property adds shadow to text.
- In its simplest use, you only specify the **horizontal shadow** (5px) and the **vertical shadow** (5px) with add a **blur effect** (20px) to the shadow.

Settings in the head section

```
h1 {
    text-shadow: 5px 5px 20px #2112E0;
}
```

In the browser, …

text with the horizontal shadow (5px) and the vertical shadow (5px) with add a blur effect (20px) to the shadow

In the body section

```
<h1>text with the horizontal shadow (5px) and the vertical shadow (5px)
with add a blur effect (20px) to the shadow</h1>
```

Demo: w0230_text_shadow.html

Source: https://www.w3schools.com/css/css_text_shadow.asp

Sources:
https://www.w3schools.com/css/css_font.asp
https://www.w3schools.com/css/css_font_websafe.asp
https://www.w3schools.com/css/css_font_websafe.asp
https://www.w3schools.com/css/css_font_websafe.asp
https://www.w3schools.com/css/css_font_size.asp

Texts – Font

- In CSS there are five generic font families:

1. **Serif** fonts have a small stroke at the edges of each letter. They create a sense of formality and elegance.
2. **Sans-serif** fonts have clean lines (no small strokes attached). They create a modern and minimalistic look.
3. **Monospace** fonts - here all the letters have the same fixed width. They create a mechanical look.
4. **Cursive** fonts imitate human handwriting.
5. **Fantasy** fonts are decorative/playful fonts.

Safe font families: Arial (sans-serif), Verdana (sans-serif), Tahoma (sans-serif), Trebuchet MS (sans-serif), Times New Roman (serif), Georgia (serif), Garamond (serif), Courier New (monospace), Brush Script MT (cursive)

Source: https://www.w3schools.com/css/css_font.asp

Texts – Font

Sources:
https://www.w3schools.com/css/css_font.asp
https://www.w3schools.com/css/css_font_websafe.asp
https://www.w3schools.com/css/css_font_websafe.asp
https://www.w3schools.com/css/css_font_websafe.asp
https://www.w3schools.com/css/css_font_size.asp

Settings in the head section

```
.p1 {
    font-family: "Times New Roman", Times, serif;
    font-weight: bold;
    font-style: normal;
    font-variant: small-caps;
    font-size: 2em;
}

.p2 {
    font-family: Arial, Helvetica, sans-serif;
    font-weight: bolder;
    font-style: italic;
    font-variant: normal;
    font-size: 200%;
}

.p3 {
    font-family: "Lucida Console", "Courier New", monospace;
    font-weight: normal;
    font-style: oblique;
    font-variant: normal;
    font-size: 3vw;
}
```

In the body section

```
<p class="p1">Lorem ipsum dolor sit amet, consectetur adipiscing
elit. In eget tortor euismod, viverra leo sit amet, egestas ipsum.
Suspendisse in magna eu leo pharetra mollis id sit amet massa.
Curabitur eu faucibus eros. In sollicitudin velit egestas venenatis
tincidunt.</p>
<p class="p2">Proin at ipsum sagittis odio fermentum vulputate.
Quisque porta sapien lorem, at dapibus nisi congue vel. Phasellus
suscipit nisi eget purus pellentesque varius. Ut viverra scelerisque
enim, et consequat erat dapibus id. Donec lectus nulla, auctor id
odio a, placerat egestas magna. Cras scelerisque hendrerit ex sit
amet ultrices.</p>
<p class="p3">Nulla sagittis eu ligula non placerat. Sed ultricies,
orci id finibus finibus, justo lorem mollis ex, ut consequat nisi
lacus eget tortor.</p>
```

In the browser, …

LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPISCING ELIT. IN EGET TORTOR EUISMOD, VIVERRA LEO SIT AMET, EGESTAS IPSUM. SUSPENDISSE IN MAGNA EU LEO PHARETRA MOLLIS ID SIT AMET MASSA. CURABITUR EU FAUCIBUS EROS. IN SOLLICITUDIN VELIT EGESTAS VENENATIS TINCIDUNT.

Proin at ipsum sagittis odio fermentum vulputate. Quisque porta sapien lorem, at dapibus nisi congue vel. Phasellus suscipit nisi eget purus pellentesque varius. Ut viverra scelerisque enim, et consequat erat dapibus id. Donec lectus nulla, auctor id odio a, placerat egestas magna. Cras scelerisque hendrerit ex sit amet ultrices.

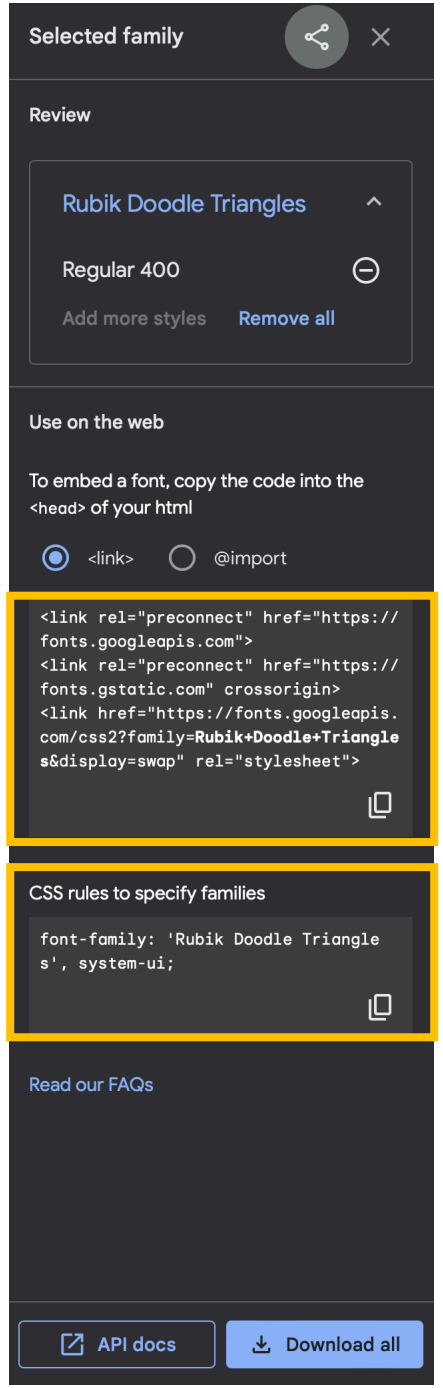
Nulla sagittis eu ligula non placerat. Sed ultricies, orci id finibus finibus, justo lorem mollis ex, ut consequat nisi lacus eget tortor.

Demo: w0231_font.html

Texts – Google Fonts

You can also select a font from Google Fonts (source: https://fonts.google.com)

Click here!



Copy this to the header!

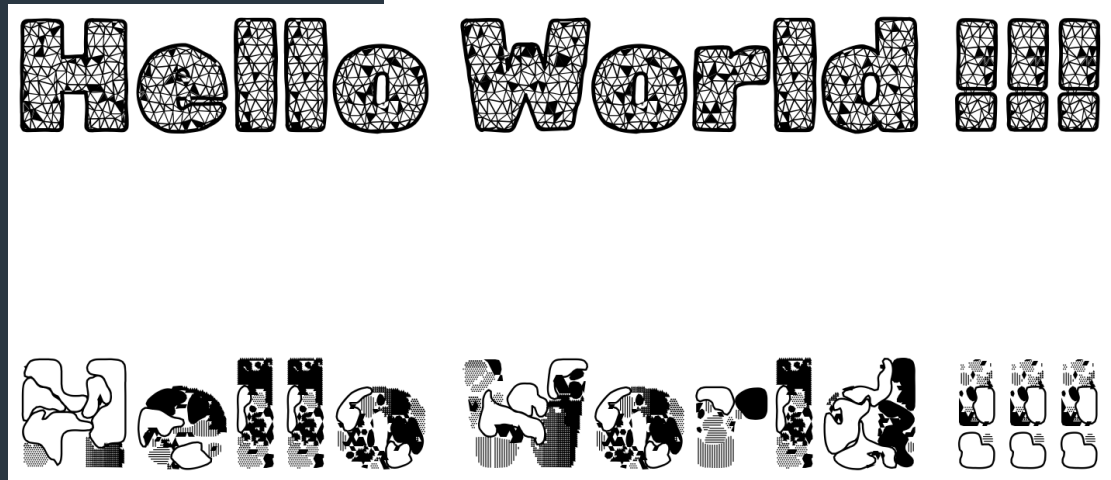
Copy this to the style!

Texts – Google Fonts

In the header and the body section, …

```
<head>
    <meta charset="utf-8">
    <link rel="preconnect" href="https://fonts.googleapis.com">
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
    <link href="https://fonts.googleapis.com/css2?family=Rubik+Doodle+Triangles&
    family=Rubik+Glitch+Pop&display=swap" rel="stylesheet">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>w0332 google font</title>
    <style type="text/css">
    .p1 {
        font-family: 'Rubik Doodle Triangles', system-ui;
        font-size: 100px;
    }

    .p2 {
        font-family: 'Rubik Glitch Pop', system-ui;
        font-size: 100px;
    }
    </style>
</head>

<body>
    <p class="p1">Hello World !!!</p>
    <p class="p2">Hello World !!!</p>
</body>
```

In the browser, …



Demo: w0232_google_font.html

Lists

- In HTML, there are two main types of lists:
  - unordered lists (<ul>) - the list items are marked with bullets
  - ordered lists (<ol>) - the list items are marked with numbers or letters
- The CSS list properties allow you to:
  - Set different list item markers for ordered lists
  - Set different list item markers for unordered lists
  - Set an image as the list item marker
  - Add background colors to lists and list items

Settings in the head section

```css
ul.a {
    list-style-type: circle;
}
ul.b {
    list-style-type: square;
}
ol.c {
    list-style-type: upper-roman;
}
ol.d {
    list-style-type: lower-alpha;
}
```

In the body section

```html
<ul class="a">
    <li>circle 1</li>
    <li>circle 2</li>
    <li>circle 3</li>
</ul>
<ul class="b">
    <li>square 1</li>
    <li>square 2</li>
    <li>square 3</li>
</ul>
<ol class="c">
    <li>upper-roman 1</li>
    <li>upper-roman 2</li>
    <li>upper-roman 3</li>
</ol>
<ol class="d">
    <li>lower-alpha 1</li>
    <li>lower-alpha 2</li>
    <li>lower-alpha 3</li>
</ol>
```

In the browser, …

- circle 1
- circle 2
- circle 3

- square 1
- square 2
- square 3

I. upper-roman 1
II. upper-roman 2
III. upper-roman 3

a. lower-alpha 1
b. lower-alpha 2
c. lower-alpha 3

Demo: w0233_lists.html

Source: https://www.w3schools.com/css/css_list.asp

Positions

- The position property specifies the type of positioning method used for an element (**static**, **relative**, **fixed**, **absolute** or **sticky**).
- Elements are then positioned using the top, bottom, left, and right properties. However, these properties will not work unless the position property is set first. They also work differently depending on the position value.

Source: https://www.w3schools.com/css/css_positioning.asp

Positions

Settings in the head section

```css
div.static {
    position: static;
    border: 3px solid #73AD21;
}
div.relative {
    position: relative;
    left: 30px;
    border: 3px solid #73AD21;
}
div.fixed {
    position: fixed;
    bottom: 400px;
    right: 0;
    width: 300px;
    border: 20px solid #73AD21
}
div.relative2 {
    position: relative;
    width: 400px;
    height: 200px;
    border: 3px solid #73AD21;
}
```

```css
div.absolute {
    position: absolute;
    top: 80px;
    right: 0;
    width: 200px;
    height: 100px;
    border: 3px solid #73AD21;
}
div.sticky {
    position: -webkit-sticky;
    position: sticky;
    top: 0;
    padding: 5px;
    background-color: #cae8ca;
    border: 2px solid #4CAF50;
}
```

In the body section

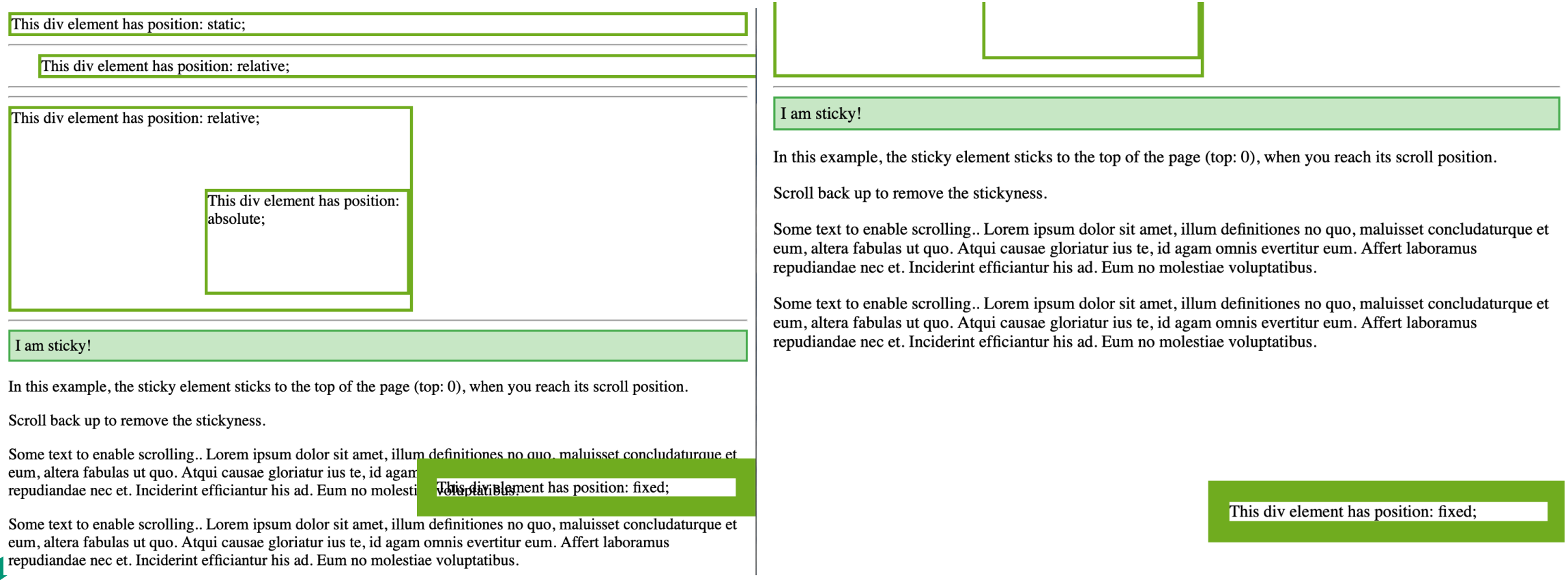
```html
<div class="static">
    This div element has position: static;
</div>
<hr>
<div class="relative">
    This div element has position: relative;
</div>
<hr>
<div class="fixed">
    This div element has position: fixed;
</div>
<hr>
<div class="relative2">This div element has position: relative;
    <div class="absolute">This div element has position: absolute;</div>
</div>
<hr>
<div class="sticky">I am sticky!</div>
<div style="padding-bottom:2000px">
    <p>In this example, the sticky element sticks to the top of the page (top: 0), when you reach its scroll position.</p>
    <p>Scroll back up to remove the stickyness.</p>
    <p>Some text to enable scrolling.. Lorem ipsum dolor sit amet, illum definitiones no quo, maluisset concludaturque et eum, altera fabulas ut quo. Atqui causae gloriatur ius te, id agam omnis evertitur eum. Affert laboramus repudiandae nec et. Inciderint efficiantur his ad. Eum no molestiae voluptatibus.</p>
    <p>Some text to enable scrolling.. Lorem ipsum dolor sit amet, illum definitiones no quo, maluisset concludaturque et eum, altera fabulas ut quo. Atqui causae gloriatur ius te, id agam omnis evertitur eum. Affert laboramus repudiandae nec et. Inciderint efficiantur his ad. Eum no molestiae voluptatibus.</p>
</div>
```

Demo: w0234_position.html

Source: https://www.w3schools.com/css/css_positioning.asp

Positions

In the browser, …



Demo: w0234_position.html

Source: https://www.w3schools.com/css/css_positioning.asp

Positions – Z-index

- When elements are positioned, they can overlap other elements.
- The z-index property specifies the stack order of an element (which element should be placed in front of, or behind, the others).
- An element can have a positive or negative stack order.

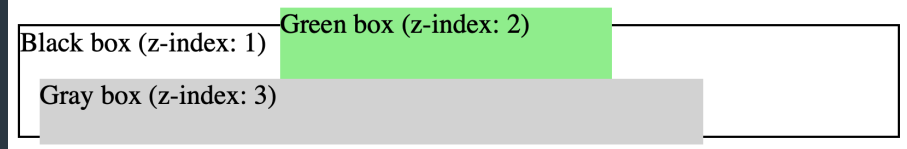
Settings in the head section

```css
.container {
    position: relative;
}
.black-box {
    position: relative;
    z-index: 1;
    border: 2px solid black;
    height: 100px;
    margin: 30px;
    font-size: 25px;
}
.gray-box {
    position: absolute;
    z-index: 3;
    /* gray box will be above both green and black box */
    background: lightgray;
    height: 60px;
    width: 70%;
    left: 50px;
    top: 50px;
    font-size: 25px;
}
.green-box {
    position: absolute;
    z-index: 2;
    /* green box will be above black box */
    background: lightgreen;
    width: 35%;
    left: 270px;
    top: -15px;
    height: 100px;
    font-size: 25px;
}
```

In the body section

```html
<div class="container">
    <div class="black-box">Black box (z-index: 1)</div>
    <div class="gray-box">Gray box (z-index: 3)</div>
    <div class="green-box">Green box (z-index: 2)</div>
</div>
```

In the browser, …



Demo: w0235_z_index.html

Source: https://www.w3schools.com/css/css_z-index.asp

Positions – Overflow

- The overflow property specifies whether to clip the content or add scrollbars when an element's content is too big to fit in the specified area. The overflow property has the following values:
  a) **visible** - Default. The overflow is not clipped. The content renders outside the element's box
  b) **hidden** - The overflow is clipped, and the rest of the content will be invisible
  c) **scroll** - The overflow is clipped, and a scrollbar is added to see the rest of the content
  d) **auto** - Similar to scroll, but it adds scrollbars only when necessary

Source: https://www.w3schools.com/css/css_overflow.asp

Positions – Overflow

Settings in the head section

```
div.hidden {
    background-color: coral;
    width: 200px;
    height: 65px;
    border: 1px solid black;
    overflow: hidden;
}
div.scroll {
    background-color: greenyellow;
    width: 200px;
    height: 100px;
    border: 1px solid black;
    overflow: scroll;
}
div.auto {
    background-color: beige;
    width: 200px;
    height: 65px;
    border: 1px solid black;
    overflow: auto;
}
div.xy {
    background-color: skyblue;
    width: 200px;
    height: 65px;
    border: 1px solid black;
    overflow-x: hidden;
    overflow-y: scroll;
}
```

In the body section

```
<h2>overflow: hidden</h2>
<div class="hidden">You can use the overflow property when you want to have
better control of the layout. The overflow property specifies what happens if
content overflows an element's box.</div>
<hr>
<h2>overflow: scroll</h2>
<div class="scroll">You can use the overflow property when you want to have
better control of the layout. The overflow property specifies what happens if
content overflows an element's box.</div>
<hr>
<h2>overflow: auto</h2>
<div class="auto">You can use the overflow property when you want to have
better control of the layout. The overflow property specifies what happens if
content overflows an element's box.</div>
<hr>
<h2>overflow: xy</h2>
<div class="xy">You can use the overflow property when you want to have better
control of the layout. The overflow property specifies what happens if content
overflows an element's box.</div>
```

In the browser, …

overflow: hidden

You can use the overflow property when you want to have better control of the layout. The overflow property

overflow: scroll

You can use the overflow property when you want to have better control of the layout. The overflow property specifies what happens if content overflows an element's

overflow: auto

You can use the overflow property when you want to have better control of the layout. The overflow property

overflow: xy

You can use the overflow property when you want to have better control of the layout. The overflow property

Demo: w0236_overflow.html

Source: https://www.w3schools.com/css/css_overflow.asp

Positions – Float

- The float property is used for positioning and formatting content e.g. let an image float left to the text in a container.
- The float property can have one of the following values:
  - **left** - The element floats to the left of its container
  - **right** - The element floats to the right of its container
  - **none** - The element does not float (will be displayed just where it occurs in the text). This is default
- **inherit** - The element inherits the float value of its parent

Positions – Float

Settings in the head section

```
img.right {
    float: right;
}
```

```
img.none {
    float: none;
}
```

In the body section

```
<p><img src="img/sqr.png" alt="square" class="right" style="width:170px;height:
    170px;margin-left:15px;">
    Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus
    imperdiet, nulla et dictum interdum, nisi lorem egestas odio, vitae
    scelerisque enim ligula venenatis dolor. Maecenas nisl est, ultrices nec
    congue eget, auctor vitae massa. Fusce luctus vestibulum augue ut aliquet.
    Mauris ante ligula, facilisis sed ornare eu, lobortis in odio. Praesent
    convallis urna a lacus interdum ut hendrerit risus congue. Nunc sagittis
    dictum nisi, sed ullamcorper ipsum dignissim ac. In at libero sed nunc
    venenatis imperdiet sed ornare turpis. Donec vitae dui eget tellus gravida
    venenatis. Integer fringilla congue eros non fermentum. Sed dapibus
    pulvinar nibh tempor porta. Cras ac leo purus. Mauris quis diam velit.</p>
<hr>
<p><img src="img/sqr.png" alt="square" class="none" style="width:170px;height:
    170px;">
    Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus
    imperdiet, nulla et dictum interdum, nisi lorem egestas odio, vitae
    scelerisque enim ligula venenatis dolor. Maecenas nisl est, ultrices nec
    congue eget, auctor vitae massa. Fusce luctus vestibulum augue ut aliquet.
    Mauris ante ligula, facilisis sed ornare eu, lobortis in odio. Praesent
    convallis urna a lacus interdum ut hendrerit risus congue. Nunc sagittis
    dictum nisi, sed ullamcorper ipsum dignissim ac. In at libero sed nunc
    venenatis imperdiet sed ornare turpis. Donec vitae dui eget tellus gravida
    venenatis. Integer fringilla congue eros non fermentum. Sed dapibus
    pulvinar nibh tempor porta. Cras ac leo purus. Mauris quis diam velit.</p>
```

Demo: w0237_float.html

In the browser, …

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus imperdiet, nulla et dictum interdum, nisi lorem egestas odio, vitae scelerisque enim ligula venenatis dolor. Maecenas nisl est, ultrices nec congue eget, auctor vitae massa. Fusce luctus vestibulum augue ut aliquet. Mauris ante ligula, facilisis sed ornare eu, lobortis in odio. Praesent convallis urna a lacus interdum ut hendrerit risus congue. Nunc sagittis dictum nisi, sed ullamcorper ipsum dignissim ac. In at libero sed nunc venenatis imperdiet sed ornare turpis. Donec vitae dui eget tellus gravida venenatis. Integer fringilla congue eros non fermentum. Sed dapibus pulvinar nibh tempor porta. Cras ac leo purus. Mauris quis diam velit.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus imperdiet, nulla et dictum interdum, nisi lorem egestas odio, vitae scelerisque enim ligula venenatis dolor. Maecenas nisl est, ultrices nec congue eget, auctor vitae massa. Fusce luctus vestibulum augue ut aliquet. Mauris ante ligula, facilisis sed ornare eu, lobortis in odio. Praesent convallis urna a lacus interdum ut hendrerit risus congue. Nunc sagittis dictum nisi, sed ullamcorper ipsum dignissim ac. In at libero sed nunc venenatis imperdiet sed ornare turpis. Donec vitae dui eget tellus gravida venenatis. Integer fringilla congue eros non fermentum. Sed dapibus pulvinar nibh tempor porta. Cras ac leo purus. Mauris quis diam velit.

Source: https://www.w3schools.com/css/css_inline-block.asp

Positions – Inline-block

- Compared to **display: inline**, the major difference is that **display: inline-block** allows to set a width and height on the element.
- Also, with **display: inline-block**, the top and bottom margins/paddings are respected, but with **display: inline** they are not.
- Compared to **display: block**, the major difference is that **display: inline-block** does not add a line-break after the element, so the element can sit next to other elements.

Source: https://www.w3schools.com/css/css_inline-block.asp

Positions – Inline-block

Settings in the head section

```css
.nav {
    background-color: yellow;
    list-style-type: none;
    text-align: center;
    margin: 0;
    padding: 0;
}
.nav li {
    display: inline-block;
    font-size: 20px;
    padding: 20px;
}
```

```css
span.a {
    display: inline;
    /* the default for span */
    width: 100px;
    height: 100px;
    padding: 5px;
    border: 1px solid blue;
    background-color: yellow;
}
span.b {
    display: inline-block;
    width: 100px;
    height: 100px;
    padding: 5px;
    border: 1px solid blue;
    background-color: yellow;
}
span.c {
    display: block;
    width: 100px;
    height: 100px;
    padding: 5px;
    border: 1px solid blue;
    background-color: yellow;
}
```

In the body section

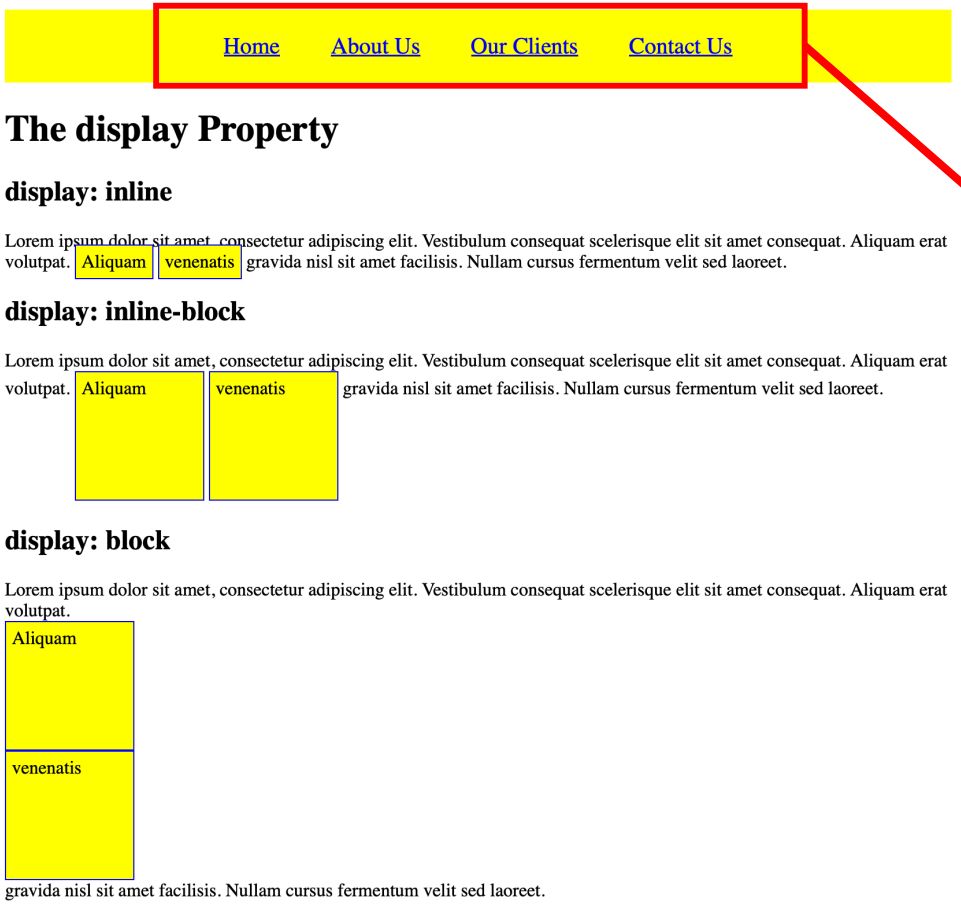
```html
<ul class="nav">
    <li><a href="#home">Home</a></li>
    <li><a href="#about">About Us</a></li>
    <li><a href="#clients">Our Clients</a></li>
    <li><a href="#contact">Contact Us</a></li>
</ul>
<h1>The display Property</h1>
<h2>display: inline</h2>
<div>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum consequat scelerisque elit sit amet consequat. Aliquam erat volutpat. <span class="a">Aliquam</span> <span class="a">venenatis</span> gravida nisl sit amet facilisis. Nullam cursus fermentum velit sed laoreet. </div>
<h2>display: inline-block</h2>
<div>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum consequat scelerisque elit sit amet consequat. Aliquam erat volutpat. <span class="b">Aliquam</span> <span class="b">venenatis</span> gravida nisl sit amet facilisis. Nullam cursus fermentum velit sed laoreet. </div>
<h2>display: block</h2>
<div>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum consequat scelerisque elit sit amet consequat. Aliquam erat volutpat. <span class="c">Aliquam</span> <span class="c">venenatis</span> gravida nisl sit amet facilisis. Nullam cursus fermentum velit sed laoreet. </div>
```

Demo: w0238_inline_block.html

Source: https://www.w3schools.com/css/css_inline-block.asp

Positions – Inline-block

In the browser, …



In the smaller window, …

Demo: w0238_inline_block.html

Source: https://www.w3schools.com/css/css_inline-block.asp

Position – Alignment

- To horizontally center a block element (like ** **), use **margin: auto**;
- Setting the element's width will prevent it from stretching out to the edges of its container. The element will then take up the specified width, and the remaining space will be split equally between the two margins.
- **Center Align Text**: To just center the text inside an element, use **text-align: center**.
- **Center an Image**: To center an image, set **left and right margin** to **auto** and make it into a **block** element.
- **Left and Right Align - Using position**: One method for aligning elements is to use **position: absolute**.
- **The clearfix Hack**: If an element is taller than the element containing it, and it is floated, it will overflow outside of its container. You can use the "**clearfix hack**" to fix this (see example below).

Source: https://www.w3schools.com/css/css_align.asp

Position – Alignment

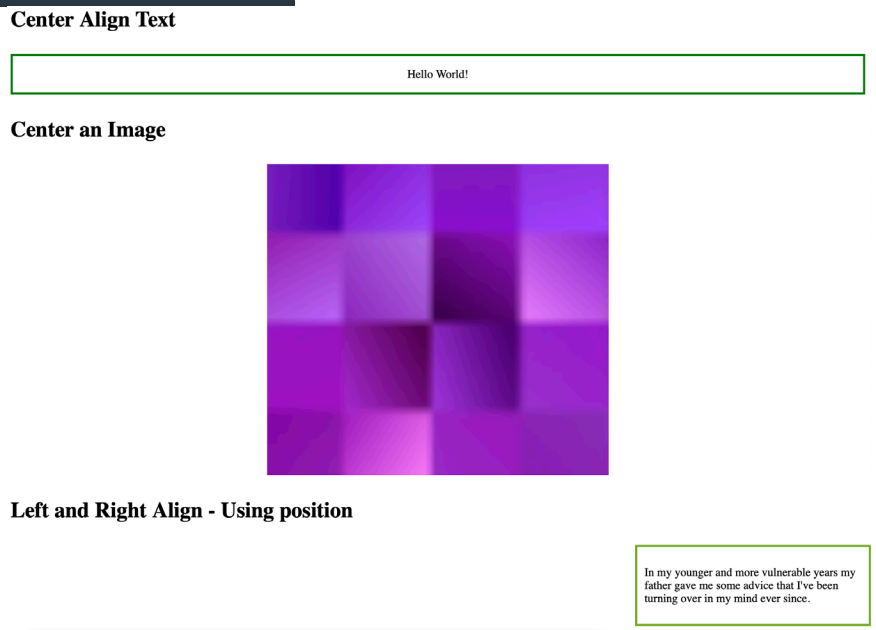
Settings in the head section

```css
p.head {
    font-weight: bold;
    font-size: 30px;
}
.center {
    text-align: center;
    border: 3px solid green;
}
img {
    display: block;
    margin-left: auto;
    margin-right: auto;
    width: 40%;
}
.right {
    position: absolute;
    right: 0px;
    width: 300px;
    border: 3px solid #73AD21;
    padding: 10px;
}
```

```html
<p class="head">Center Align Text</p>
<div class="center">
    <p>Hello World!</p>
</div>
<p class="head">Center an Image</p>
<img src="img/sqr.png" alt="square" style="width:40%">
<p class="head">Left and Right Align - Using position</p>
<div class="right">
    <p>In my younger and more vulnerable years my father gave me some advice
    that I've been turning over in my mind ever since.</p>
</div>
```

In the body section

In the browser, …



Demo: w0239_alignment.html

Source: https://www.w3schools.com/css/css_align.asp

Position – Alignment

Settings in the head section

```css
div {
    border: 3px solid #4CAF50;
    padding: 5px;
}
.img1 {
    float: right;
}
.img2 {
    float: right;
}
.clearfix::after {
    content: "";
    clear: both;
    display: table;
}
```

In the body section

```html
<h2>Without Clearfix</h2>
<p>This image is floated to the right. It is also taller than the element
containing it, so it overflows outside of its container:</p>
<div>
    <img class="img1" src="img/sqr.png" alt="Pineapple" width="170" height="170"
    >
    Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus
    imperdiet...
</div>
<h2 style="clear:right">With New Modern Clearfix</h2>
<p>Add the clearfix hack to the containing element, to fix this problem:</p>
<div class="clearfix">
    <img class="img2" src="img/sqr.png" alt="Pineapple" width="170" height="170"
    >
    Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus
    imperdiet...
</div>
```

In the browser, …

Without Clearfix

This image is floated to the right. It is also taller than the element containing it, so it overflows outside of its container:

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus imperdiet...

With New Modern Clearfix

Add the clearfix hack to the containing element, to fix this problem:

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus imperdiet...

Demo: w0240_alignment2.html

Source: https://www.w3schools.com/css/css_align.asp

Position – Alignment

- **Center Vertically - Using padding**: There are many ways to center an element vertically in CSS. A simple solution is to use top and bottom padding.
- **Center Vertically - Using line-height**: Another trick is to use the line-height property with a value that is equal to the height property.
- **Center Vertically - Using position & transform**: If padding and line-height are not options, another solution is to use positioning and the transform property.
- We do not provide examples of this part, but if you need to use examples to understand the usage of these ideas. Please visit the reference website below.

Source: https://www.w3schools.com/css/css_align.asp

Images

- We may also reshape and add effects of images.

Settings in the head section, …

```css
body {
    background-color: white;
}
img {
    border-radius: 50%;
}
.blur {
    filter: blur(4px);
}
.brightness {
    filter: brightness(250%);
}
.contrast {
    filter: contrast(180%);
}
.grayscale {
    filter: grayscale(100%);
}
.huerotate {
    filter: hue-rotate(180deg);
}
.invert {
    filter: invert(100%);
}
.opacity {
    filter: opacity(50%);
}
.saturate {
    filter: saturate(7);
}
.sepia {
    filter: sepia(100%);
}
.shadow {
    filter: drop-shadow(8px 8px 10px green);
}
```

In the body section

```html
<h2>Image Filters</h2>
<p><strong>Note:</strong> The filter property is not supported in Internet Explorer or Edge 12.</p>
<img src="img/101.png" alt="taipei 101" width="300" height="300">
<img class="blur" src="img/101.png" alt="taipei 101" width="300" height="300">
<img class="brightness" src="img/101.png" alt="taipei 101" width="300" height="300">
<img class="contrast" src="img/101.png" alt="taipei 101" width="300" height="300">
<img class="grayscale" src="img/101.png" alt="taipei 101" width="300" height="300">
<img class="huerotate" src="img/101.png" alt="taipei 101" width="300" height="300">
<img class="invert" src="img/101.png" alt="taipei 101" width="300" height="300">
<img class="opacity" src="img/101.png" alt="taipei 101" width="300" height="300">
<img class="saturate" src="img/101.png" alt="taipei 101" width="300" height="300">
<img class="sepia" src="img/101.png" alt="taipei 101" width="300" height="300">
<img class="shadow" src="img/101.png" alt="taipei 101" width="300" height="300">
```

Demo: w0241_images.html

Images

In the browser, …

Demo: w0241_images.html

Navigation Bar

- **Navigation Bars**
- Having easy-to-use navigation is important for any website.
- With CSS you can transform boring HTML menus into good-looking navigation bars.
- **Navigation Bar = List of Links**
- A navigation bar needs standard HTML as a base.
- A navigation bar is basically a list of links, so using the **<ul>** and **<li>** elements makes perfect sense.

Source: https://www.w3schools.com/css/css_navbar.asp

Navigation Bar

- Vertical navigation bar

Settings in the head section

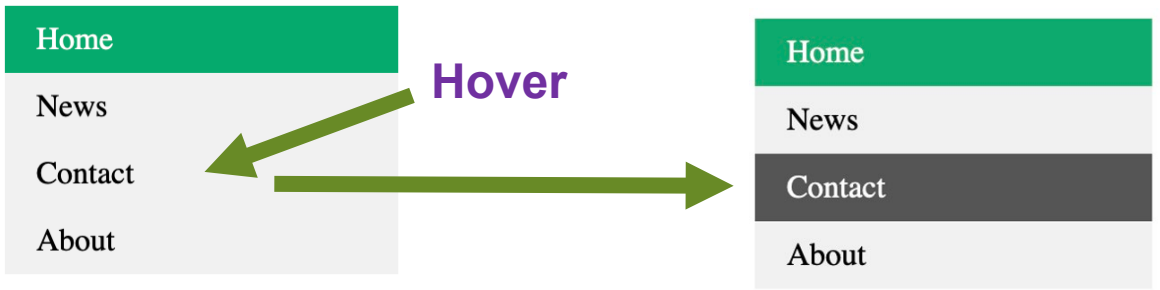
```css
ul {
    list-style-type: none;
    margin: 0;
    padding: 0;
    width: 200px;
    background-color: #f1f1f1;
}
li a {
    display: block;
    color: #000;
    padding: 8px 16px;
    text-decoration: none;
}
li a.active {
    background-color: #04AA6D;
    color: white;
}
li a:hover:not(.active) {
    background-color: #555;
    color: white;
}
```

In the body section

```html
<h2>Vertical Navigation Bar</h2>
<p>In this example, we create an "active" class with a green background color and a white text. The class is added to the "Home" link.</p>
<ul>
    <li><a class="active" href="#home">Home</a></li>
    <li><a href="#news">News</a></li>
    <li><a href="#contact">Contact</a></li>
    <li><a href="#about">About</a></li>
</ul>
```

Vertical Navigation Bar In the browser, …

In this example, we create an "active" class with a green background color and a white text. The class is added to the "Home" link.



Demo: w0242_navigation.html

Source: https://www.w3schools.com/css/css_navbar.asp

Navigation Bar

- Horizontal navigation bar

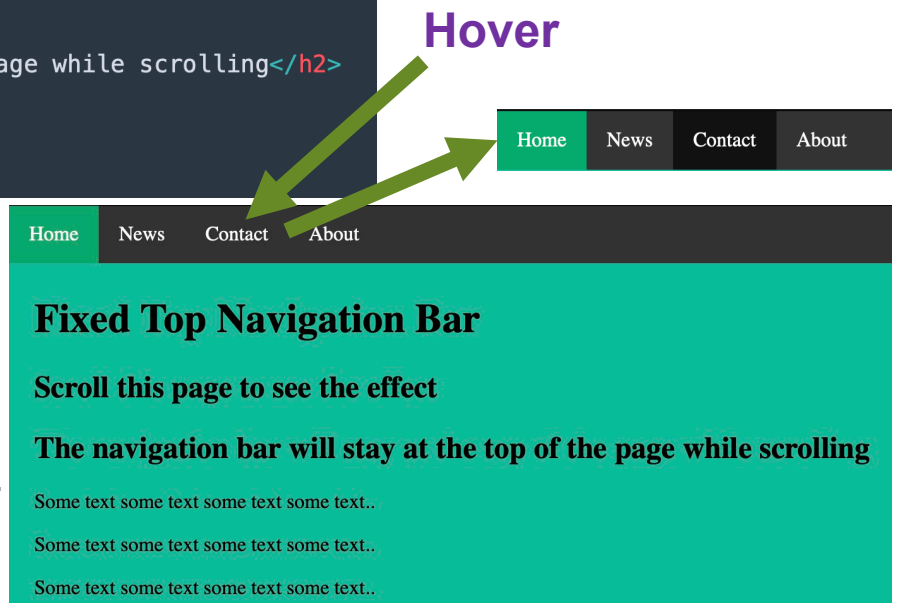
Settings in the head section

```css
body {
    margin: 0;
}
ul {
    list-style-type: none;
    margin: 0;
    padding: 0;
    overflow: hidden;
    background-color: #333;
    position: fixed;
    top: 0;
    width: 100%;
}
li {
    float: left;
}
li a {
    display: block;
    color: white;
    text-align: center;
    padding: 14px 16px;
    text-decoration: none;
}
li a:hover:not(.active) {
    background-color: #111;
}
.active {
    background-color: #04AA6D;
}
```

In the body section

```html
<ul>
    <li><a class="active" href="#home">Home</a></li>
    <li><a href="#news">News</a></li>
    <li><a href="#contact">Contact</a></li>
    <li><a href="#about">About</a></li>
</ul>
<div style="padding:20px;margin-top:30px;background-color:#1abc9c;height:1500px;">
    <h1>Fixed Top Navigation Bar</h1>
    <h2>Scroll this page to see the effect</h2>
    <h2>The navigation bar will stay at the top of the page while scrolling</h2>
    <p>Some text some text some text some text..</p>
    <p>Some text some text some text some text..</p>
    <p>Some text some text some text some text..</p>
    <p>Some text some text some text some text..</p>
```

In the browser, …

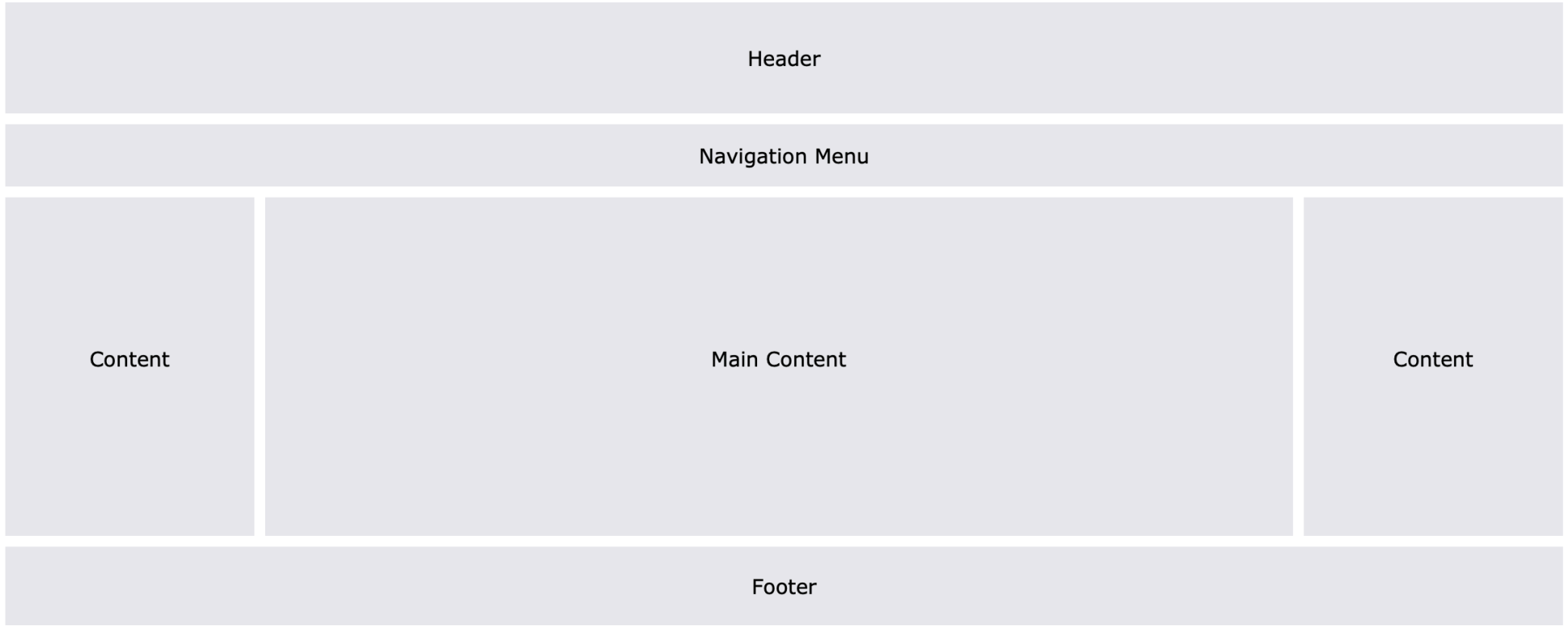


Demo: w0243_navigation2.html

Source: https://www.w3schools.com/css/css_navbar.asp

Layout

- A website is often divided into headers, menus, content and a footer:



Responsive Web Design

- Have you ever visited some badly-designed websites? Lost information, inappropriate font size, incorrect display?
- The major problem of these issues is caused by screen resolution, which always occurs when you connect to a projector (usually, projectors are low resolution).
- To solve this problem, we introduce the concept of “response web design,” which automatically resizes and rearranges all elements in a pre-defined order.

Responsive Web Design

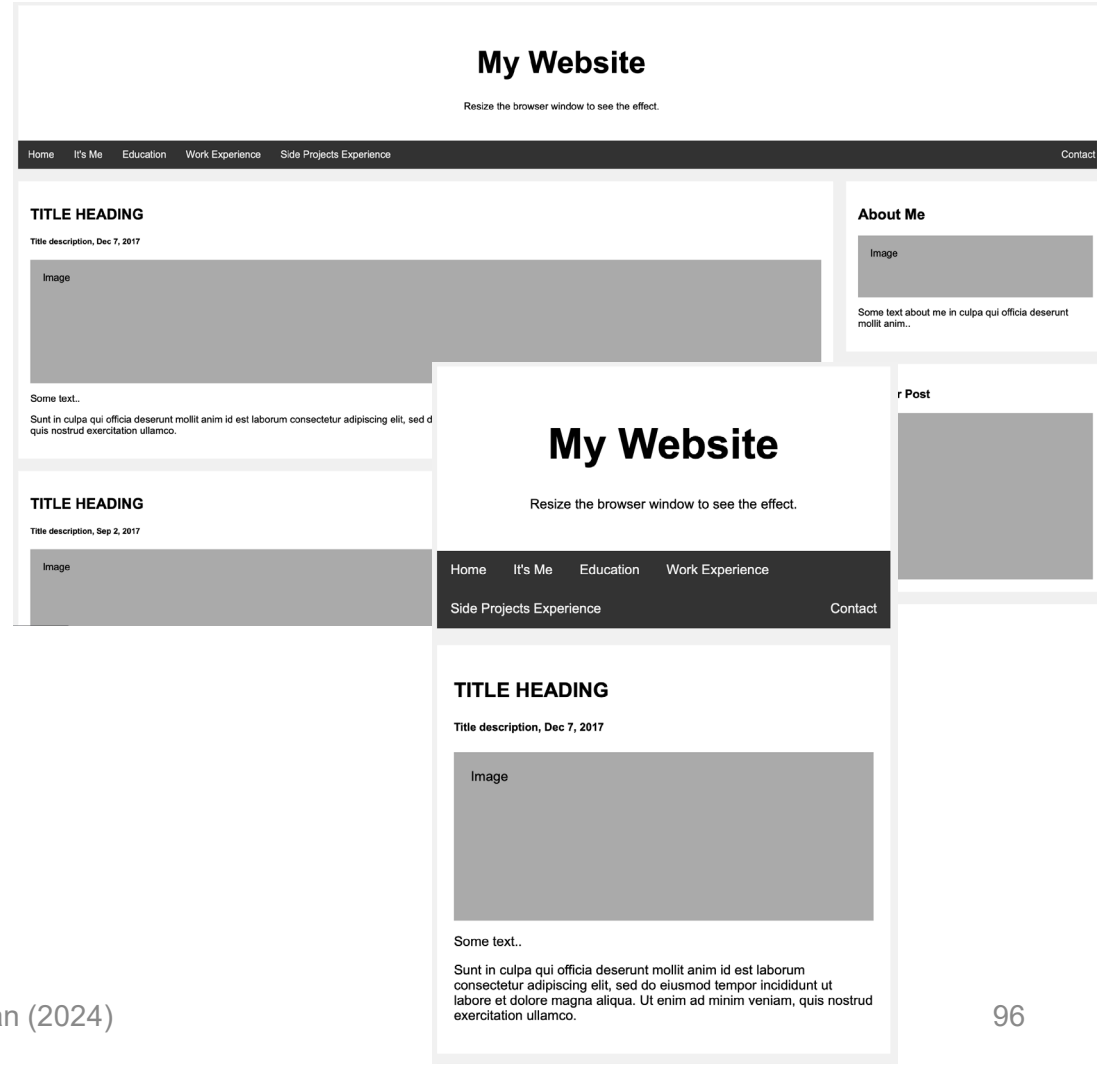
Settings in the head section

```css
/* Create two unequal columns that floats next to each other */
/* Left column */
.leftcolumn {
    float: left;
    width: 75%;
}

/* Right column */
.rightcolumn {
    float: left;
    width: 25%;
    background-color: #f1f1f1;
    padding-left: 20px;
}
```

```css
/* Responsive layout - when the screen is less than 800px wide, make the two columns stack on top of each other instead of next to each other */
@media screen and (max-width: 800px) {

    .leftcolumn,
    .rightcolumn {
        width: 100%;
        padding: 0;
    }
}

/* Responsive layout - when the screen is less than 400px wide, make the navigation links stack on top of each other instead of next to each other */
@media screen and (max-width: 400px) {
    .topnav a {
        float: none;
        width: 100%;
    }
}
```

Demo: w0244_rwd.html

In the browser, …

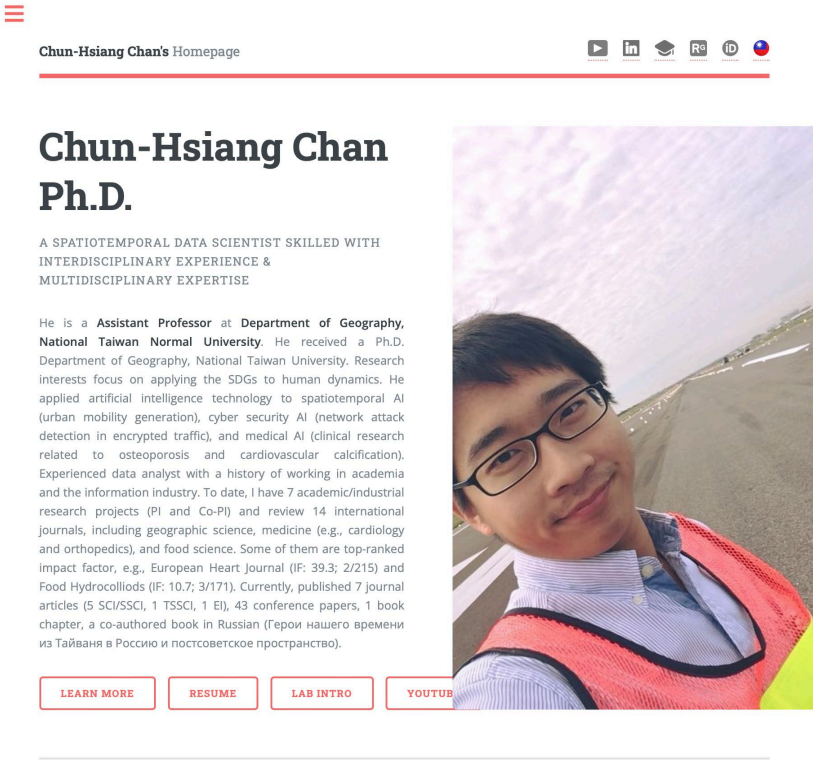


Source: https://www.w3schools.com/css/css_image_gallery.asp

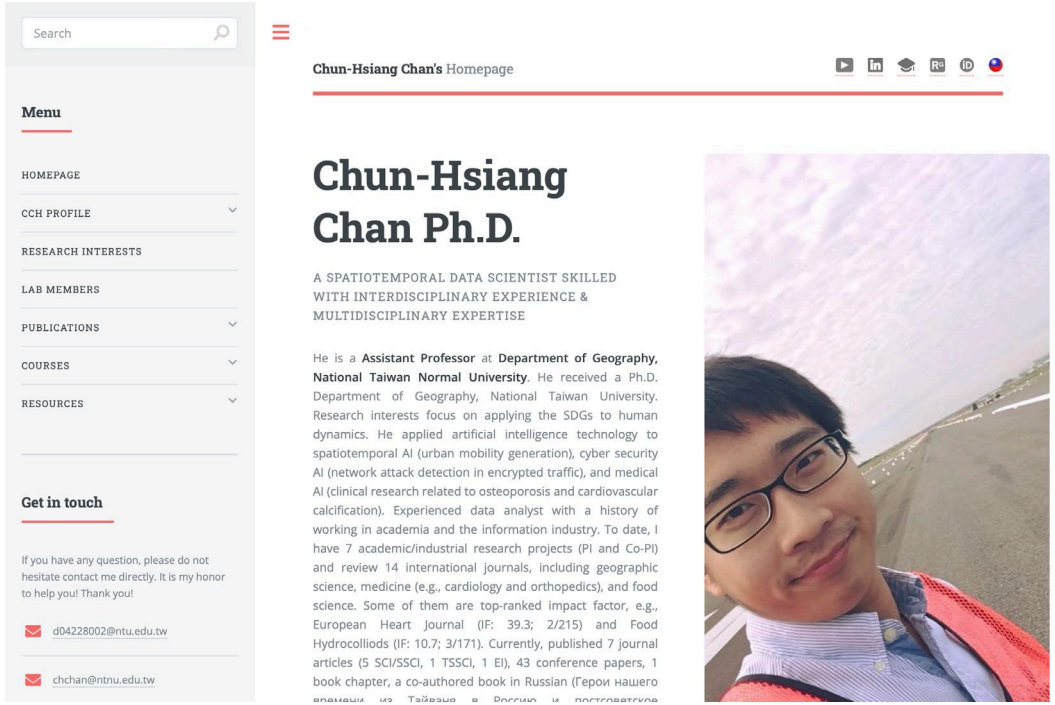
Responsive Web Design

The small-size screen …

The middle-size screen …



The large-size screen …



Assignment

Design a webpage to introduce yourself.

- You may introduce all education, work experience, hobbies, interests, etc.
- Complete your personal website without using templates.
- Conducting responsive web design on your personal website could get bonus points.

The End

Thank you for your attention!

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